PROJECT MANUAL

SET NO. _____

PROJECT MANUAL
INCLUDING SPECIFICATIONS
FOR GENERAL CONSTRUCTION

OF

GRANT COUNTY AIRPORT TERMINAL RENOVATION
GRANT COUNTY IFB No. B-20-02

AIP Project No. 3-35-0039-021-2019
NMDOT – Aviation Division Grant No. SVC-19-03

FOR

Grant County New Mexico

Commissioner District 1	Chris M. Ponce
Commissioner District 2	Javier “Harvey” Salas
Commissioner District 3	Alicia Edwards
Commissioner District 4	Billy Billings
Commissioner District 5	Harry Browne
County Manager	Charlene Webb

BID DOCUMENTS

05 JULY 2019

ASA PROJECT No: 19104L

ASA ARCHITECTS

THIS PAGE INTENTIONALLY LEFT BLANK

PROJECT MANUAL
INCLUDING SPECIFICATIONS
FOR GENERAL CONSTRUCTION

OF

GRANT COUNTY AIRPORT TERMINAL RENOVATION

158 Airport Road
Hurley, New Mexico

Grant County IFB No. B-20-02
AIP Project No. 3-35-0039-021-2019
NMDOT – Aviation Division Grant No. SVC-19-03

FOR

GRANT COUNTY

1400 Highway 180 East
Silver City, NM 88061

BID DOCUMENTS

05 July 2019
ASA Project No: 19104L

ASA ARCHITECTS
201 N. Alameda
Las Cruces, NM 88005
P 575.526.3111
www.asa-architects.com

CONSULTANTS

Civil: Weber Engineering / P. O. Box 5132 / Silver City NM 88062 / (575) 388-2082
Structural: Stubbs Engineering / 277 E. Amador Ave., Ste 200 / Las Cruces, NM 88001 / (575) 993-5223
MPE: RBM Engineering, Inc., 1014 S. Main St., Ste C / Las Cruces, NM 88005 / (575) 647-1554

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00 0105 - CERTIFICATION PAGE

The technical material and data contained in this Project Manual were prepared under the supervision and direction of the undersigned, whose seal as a Professional Architect, licensed to practice in the State of New Mexico, is affixed below.

_____

Robert S. Price, AIA
Registered Architect in the State of New Mexico
License No. 5017
201 North Alameda
Las Cruces, New Mexico 88005
(575) 526-3111

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00 0110 – TABLE OF CONTENTS

END OF SECTION 00 0110 – TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00 0115 - INDEX TO DRAWINGS

SHEET NO. SHEET TITLE

G-000 Cover
G-001 General Information

CIVIL:
C-101 Site Grading and Drainage Plan
C-102 Site Layout Plan
C-103 Site Utility Plan
C-500 Site Details, Project Notes
C-501 Site Details

STRUCTURAL:
S-200 Foundation Notes
S-300 Framing Plan
S-400 Foundation Details
S-500 Typical Framing Details
S-501 Roof Framing Plan

ARCHITECTURAL:
AS-100 Site Plan; General Site Notes
AD-100 Floor Plan Existing; Floor Plan Demolition; Demolition Keyed Notes; Demolition General Notes
A-101 Floor Plan; Project General Notes; Wall Type Legend
A-102 New Ceiling Plan; Ceiling Legend
A-103 New Roof Plan; Roof General Notes
A-104 Finish Plan; Finish Schedule
A-200 Exterior Elevations
A-300 Building Sections
A-301 Wall Sections
A-400 Interior Elevations
A-500 Door Schedule; Details
A-501 Details

MECHANICAL:
MD-101 Existing – Demolition HVAC Plan
M-001 HVAC Schedules, HVAC Legend, HVAC Notes
M-101 HVAC New Work Plan, Keyed Notes

PLUMBING:
PD-101 Existing - Demolition Plumbing Plan, Demolition Keyed Notes
P-001 Plumbing Fixture Schedules, Plumbing Schematics, Plumbing Legend, Plumbing Notes
P-101 Plumbing Floor Plan, Keyed Notes
P-102 Plumbing Roof Plan, Keyed Notes
P-103 Plumbing Riser Diagrams

ELECTRICAL:
ED-101 Lighting Demolition Plan, Power / Special Systems Demolition Floor Plan, Notes
E-001 Fixture Schedule, Electrical Legends, Electrical Notes, Compliance Certificate
E-002 Riser Diagrams, Panel Schedule, Load Summary Calculations, Details, Notes
E-101 Lighting New Work Floor Plan, Power / Special Systems New Work Plan, Notes

END OF SECTION 00 0115 - INDEX TO DRAWINGS

THIS PAGE INTENTIONALLY LEFT BLANK

INVITATION TO BID
GRANT COUNTY

Sealed Bids for general construction of "Grant County Airport Terminal Renovation", Grant County IFB No. B-20-02 / AIP Project No. 3-35-0039-021-2019 / NMDOT – Aviation Division Grant No. SVC-19-03, will be received by the Grant County Purchasing Agent at the Grant County Manager's Office, 1400 Highway 180 East, Silver City, New Mexico 88061 until **2:00 p.m., local time, Thursday, July 25, 2019**. At that time all bids will be publicly opened and read aloud. Any bid received after closing time will be returned unopened.

The Scope of Work is construction of the renovation of an existing airport terminal building including site work, architectural and reroofing, mechanical, plumbing and electrical work; as indicated on the drawings and in the project manual.

Drawings, specifications and contract documents may be examined, without charge, at the Grant County Manager's Office, 1400 Highway 180 East, Silver City, New Mexico 88061; and at the architect's office: ASA Architects, 201 North Alameda, Las Cruces, New Mexico 88005, Phone (575) 526-3111.

Bona fide prime and sub-bidders may obtain one (1) electronic set of drawings and specifications from the architect's office at 201 North Alameda, Las Cruces, New Mexico 88005, telephone (575) 526-3111, upon deposit of One Hundred Dollars ($100.00) per set plus non-refundable shipping costs. Those who submit bids may obtain a refund of deposits by returning sets in good condition to the architect no more than fifteen (15) days after bids have been opened. Partial sets will not be issued.

Bidders are advised that the following are included in the contract:

1. Bid Bond shall be required from Bidders submitting Bids.
2. State Wage Rates.
3. Public Works and Apprenticeship and Training Act.
4. Contractors and all tiers of subcontractors whose bid is $60,000 or more must be actively registered with the Public Works and Apprenticeship Application of the New Mexico Department of Workforce Solutions prior to bidding.
5. Federal Davis-Bacon Wage Rates.
6. Federal bidding requirements and contract provisions, including Buy American Certifications and Disadvantaged Business Enterprise utilization.
7. Prime contractors and subcontractors must have active contractors' licenses prior to opening of bids.
8. A pre-bid conference will be held for all interested bidders on Tuesday, July 16, 2019 at 1:30 p.m., local time, at the project site, Grant County Airport, David D. Diaz Terminal, 158 Airport Road, Hurley, New Mexico 88043. Attendance is not mandatory in order to submit a bid but it is strongly recommended for contractors intending to bid on the Work.
9. Performance Bond and Payment Bonds shall be required from the Prime Contractor subsequent to contract award.
10. Liquidated damage clause.

Grant County reserves the right to reject any or all bids and to waive any or all informalities. Bidders may not withdraw their bid for 60 days from the date of the bid opening without forfeiture of bid bond.

END OF INVITATION TO BID

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00 2113 – INSTRUCTIONS TO BIDDERS

1.1 INVITATION TO BID

A. Sealed Bids for general construction of "Grant County Airport Terminal Renovation", Grant County IFB No. B-20-02 / AIP Project No. 3-35-0039-021-2019 / NMDOT – Aviation Division Grant No. SVC-19-03, will be received by the Grant County Purchasing Agent at the Grant County Manager's Office, 1400 Highway 180 East, Silver City, New Mexico 88061; until 2:00 p.m. (local time), Thursday, July 25, 2019. At that time all bids will be publicly opened and read aloud. Any bid received after closing time will be returned unopened.

B. The Scope of Work is the construction of a renovation of an existing airport terminal building including associated site, architectural, roofing, mechanical, plumbing and electrical work as indicated on the drawings and in the project manual.

C. Drawings, specifications and contract documents may be examined without charge at the Grant County Manager's Office, 1400 Highway 180 East, Silver City, New Mexico 88061 and at the architect's office:

ASA Architects
201 North Alameda
Las Cruces, New Mexico 88005
Phone (575) 526-3111.

D. Bona fide prime and sub bidders may obtain one (1) electronic set of drawings and specifications from the Architect at 201 North Alameda, Las Cruces, New Mexico 88005, Phone (575) 526-3111. A deposit of one hundred dollars ($100.00) is required plus non-refundable shipping costs. Plans Holders shall return sets in good condition no more than fourteen (15) days after bids have been opened for a refund of the deposit. Partial sets will not be issued.

1.2 BIDDING SCHEDULE

A. Proposed project delivery timeline:

1. Bidding advertised: Sunday, July 7, 2019.

2. Pre-bid meeting: 1:30 p.m., Tuesday, July 16, 2019.

3. Deadline for questions and requests for information: 12:00 noon, Thursday, July 18, 2019.

4. Final addendum issued: Monday, July 22, 2019.

5. Bids due no later than 2:00 p.m., Thursday, July 25, 2019, for public opening.

B. These dates represent a tentative schedule of events. The County reserves the right to modify these dates at any time, with appropriate notice to prospective Bidders.

1.3 PREBID MEETING

A. A pre-bid conference will be held for all interested bidders on Tuesday, July 16, 2019 at 1:30 p.m., local time, at the project site; 158 Airport Road, Hurley, New Mexico. Attendance is not mandatory in order to submit a bid but it is strongly recommended for contractors bidding the Work; subcontractors may also wish to attend. Responses to questions and requests for clarification raised at the Pre-Bid Conference will be addressed via an addendum issued by

the Architect.

1.4 INTERPRETATION OF CONTRACT DOCUMENTS

A. All questions or requests for clarification related to the drawings and specifications shall be directed to Robert S. Price (email robprice@asa-architects.com) at ASA Architects, 201 North Alameda, Las Cruces, New Mexico 88005; telephone (575) 526-3111.

1.5 SUBSTITUTIONS

A. Bidders are notified that wherever in the Specifications a product is identified by brand name, an equal product will be accepted provided the Bidder submits evidence that the product meets or exceeds the specified requirements and performance of the named product. The use of a brand name is for the purpose of describing the standard of quality, performance and characteristics desired and is not intended to limit or restrict competition. When bidding an "or equal" the supplier or manufacturer whose products or materials have not been specified has the burden of presenting information to substantiate the “or equal” basis of their products or materials. Information shall be submitted through the Architect to receive the procurement officer’s concurrence that their product is, in fact, equal to the one specified. The procurement officer has the responsibility of making a final determination on whether a proposed substitution is an "or equal."

B. To obtain approval to use unspecified products, Bidders shall submit requests in accordance with Section 01 6200 Product Options and Section 01 6213 Substitution Request Form. Requests shall clearly describe the product for which approval is being requested, including all data necessary to demonstrate acceptability. If the product is acceptable the Architect will approve it in writing.

1.6 ADDENDA

A. Answers to questions, inquiries or requests for additional information will be issued to all Bidders in the form of addenda. Bidders shall acknowledge receipt of each addendum in their Bids and each addendum shall be considered a part of the Contract Documents. Failure to acknowledge receipt of any addendum issued may be cause for rejection of Bid.

1.7 QUALIFICATION OF BIDDERS

A. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry-out the obligations of the Contract and to complete the Work. Bidders shall furnish all necessary information and data as may be requested. Conditional Bids will not be accepted.

B. Bidders shall submit a Statement of Qualifications which is a part of the Bid Form.

C. The Bidder, by signing the Bid, represents that it has the financial capacity and experience to carry-out the work through completion. Unless the Bidder can show evidence of such ability, it will not be eligible to receive the award of the contract.

1. The Owner reserves the right to require that the low Bidder furnish a notarized financial statement and experience statement, and failing in that the Bidder shall not be entitled to further consideration.

2. To be eligible for consideration, the Bidder’s financial statement should show that it has available liquid assets amounting to at least ten percent (10%) of the combined total of its Bid, plus the amount required for uncompleted Work on other contracts held by it at the time of Bid opening.

3. The Owner reserves the right to award the contract to such bidder whose statements reveal that it is qualified by experience and financial capability to successfully carry-out the Work.

4. Data disclosed in these statements shall be respected as confidential to the extent allowed by the Inspection of Public Records Act, Chapter 14, Article 2 NMSA 1978.

D. It is the sole responsibility of the Bidder requesting consideration for resident or veteran preference to submit the appropriate form(s) to the New Mexico Taxation and Revenue Department and to receive approval and a certification number. The preference number must be included on the Bid Form and requests for preference after the bid opening will not be considered.

1.8 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. Bidders shall carefully examine the complete Contract Documents, including the drawings and specifications, and all addenda. Bidders that find any discrepancies in the Contract Documents shall bring the discrepancies to the attention of the Architect.

B. Each bidder will be presumed to have inspected the site to verify the correctness of all site information. Bidders that find any discrepancies between existing site conditions and information shown in the Contract Documents shall bring the discrepancies to the attention of the Architect.

1.9 CONDITIONS OF THE WORK

A. Each Bidder shall inform themselves fully of the conditions relating to construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful Bidder of the obligation to furnish all material and labor necessary to carry out the provisions of the Contract.

1.10 LAWS AND REGULATIONS

A. All applicable federal, state, and local laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the construction of the project shall apply to the Contract throughout and they will be deemed to be included in the Contract the same as if written therein in full.

B. The New Mexico Procurement Code, Sections 13-1-28 through 13-1-199 NMSA 1978, imposes civil and criminal penalties for violations involving bribes, gratuities, and kickbacks. Additionally, New Mexico criminal statutes impose felony penalties for illegal bribes, gratuities, and kickbacks.

1.11 BIDS

A. Each Bid must be submitted on the prescribed form. All blank spaces must be filled in, including any spaces listed specifically for Unit Prices. Bid form shall be completed in ink or typewritten. All addenda received must be acknowledged in the appropriate space. Bid shall be signed by a person who can legally bind the successful Bidder to the Owner.
   1. Multiple bids from a single bidder are not acceptable and will be rejected.
   2. Mistakes may be corrected prior to opening but must be initialed by the person signing the bid.
   3. Corrections or modifications received after the bid opening time will not be accepted.
   4. Written qualifications of bids are not acceptable and will result in disqualification of bid.

B. Completed Bids shall be submitted in sealed envelopes clearly marked with the name and number of the project as it appears on the cover page of the Specifications and with the name and address of the Bidder.

C. Telegraphic, faxed, or e-mailed bids will not be accepted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "Bid Enclosed" on the face thereof.

D. Bids will be received only until the specified opening date and time. Late bids will not be accepted. It is the Bidder's responsibility to deliver their Bid at the proper time to the proper place.

E. Official bid receipt time will be kept by the Grant County Purchasing Department.

F. Failure to submit requested information or documentation or the submission of incorrect information or documentation may result in disqualification of bid.

G. Requests to withdraw a Bid shall be made in person or by written notice by the Bidder at any time prior to the scheduled closing time for the receipt of Bids.

H. Clarification of bidding procedures may be made by contacting the Grant County Purchasing Office, Phone (575) 574-0016.

1.12 SUBCONTRACTOR'S FAIR PRACTICES ACT

A. The Bidder shall list the Subcontractors proposed for use on the project on the Subcontractor Listing Form (part of Bid Form), pursuant to the Subcontractors Fair Practices Act, sections 13-4-31 through 13-4-43, as amended, NMSA 1978.
   1. Omission or noncompliance with the intent of the Subcontractor listing will be grounds for considering a Bid as non-responsive.
   2. Only one subcontractor shall be listed for each classification.
   3. All subcontractors must be licensed by the State of New Mexico for the work they perform.

1.13 BID BOND

A. Bid Security in the form of a five percent (5%) Bid Bond from the Prime Bidder shall accompany each Bid. The successful Bidder's security will be retained by the Owner until they have signed the contract for construction between the Owner and the Contractor and furnished the required payment and performance bonds executed by a Surety Company authorized to do business in the State of New Mexico along with requisite Power(s) of Attorney, and a notarized statement that said surety is approved in Federal Circular 570 as published by the United States Treasury Department or the State Board of Finance.
   1. A cashier's check or any other security is not acceptable in lieu of a Bid Bond.
   2. If any Bidder refuses to enter into a contract, the Owner will file a claim against that Bidder's Bid Bond as legitimate damages, but not as a penalty.

B. The Owner reserves the right to retain the security of the next two lowest qualified Bidders until the lowest qualified Bidder enters into a contract for construction with the Owner or until 60 days after the Bid opening, whichever is the shorter.

C. All other bid security will be returned as soon as practicable.

1.14 TAXES

A. Do not include New Mexico Gross Receipts Tax (NMGRT) in the Bid amount. After entering

into a contract for construction the Bidder/Contractor shall comply with all requirements of the State of New Mexico Gross Receipts and Compensating Act and shall require all subcontractors to comply as well. Applicable NMGRT must be shown as a separate line item on the Schedule of Values and subsequent Applications for Payment.

1.15 METHOD OF AWARD

A. One contract award will be made to the lowest responsive Bidder taking into consideration qualifications and capabilities of the Bidder, availability of funds, and any other relevant factors.

B. Grant County reserves the right to:
   1. Award bids received on the basis of individual items, or groups of items, or on the entire list of items.
   2. Reject any or all bids, or any part thereof.
   3. Waive any or all technicalities or irregularities in the bids.
   4. Accept the bid that is deemed most advantageous to Grant County.

1.16 PROTEST

A. Any Bidder, offeror, or contractor who believes that they have been aggrieved in connection with this procurement action may protest to the Grant County Purchasing Department. The protest shall be submitted in writing no later than fifteen (15) calendar days after the bid opening.

1.17 EXECUTION OF CONTRACT

A. Promptly upon receipt of written notice of acceptance of the Bid along with the Owner-Contractor Agreement, the Contractor shall obtain the required performance and payment bonds and certificates of insurance and shall sign all copies of the Agreement. These executed documents shall be delivered to the Owner through the Architect no later than seven (7) days after their receipt by the Bidder/Contractor, unless otherwise directed.

B. Upon receipt of a Contract signed by the Owner and a written Notice to Proceed, the Contractor shall commence work no later fourteen (14) days from the commencement date stipulated in the Notice to Proceed.

1.18 NON-DISCRIMINATION

A. Contractors doing business with Grant County must be in compliance with Federal Civil Rights Act of 1964, Title VII.

1.19 EQUAL OPPORTUNITY EMPLOYER

A. Grant County is an affirmative action and equal opportunity employer. The County does not discriminate on the basis of race, color, national origin, sex, age or handicap in its programs, activities, or employment.

1.20 STATE OF NEW MEXICO WAGE RATES

A. The Contractor or subcontractor that submits a bid valued at more than sixty thousand dollars ($60,000) for a public works project that is subject to the Public Works Minimum Wage Act must be registered with the New Mexico Department of Workforce Solutions, Labor Relations Division, before bid opening. All tiers of subcontractors shall be subject to the requirements of this subsection. Bids will not be accepted on public works projects subject to the public works minimum wage act; from a contractor who does not provide proof of required registration.

Contractors and subcontractors may register with the New Mexico Department of Work Force Solutions (NMDWS), Labor Relations Division (LRD) on a form provided by the division and in accordance with NMDWS rules and regulations. NMDWS charges an annual registration fee and the LRD issues to the applicant a certificate of registration after receiving from the applicant the completed registration form and the registration fee; pursuant to NMDWS rules and regulations.

B. Contractor and subcontractors may register at
http://www.dws.state.nm.us/dws-pubwage.html
Additional information may be obtained by contacting NMDWS at (505) 841-8995.

C. The contract is subject to State of New Mexico Prevailing Wage Rates included within this project manual or as issued by addendum.

1.21 PUBLIC WORKS APPRENTICE AND TRAINING ACT

A. Bidders should inform themselves fully of Public Works Apprentice and Training Act, (13-4D-1 through 13- 4D-8, NMSA 1978). In particular, Section 13-4D-4.B that states:
"Public works construction projects, except for street, highway, bridge, road, utility or maintenance contracts with employees who elect not to participate in training shall not be constructed unless an employer agrees to make contributions to approved apprentice and training programs in New Mexico in which the employer is a participant or to the public works bureau of the labor and industrial division of the labor department. Contributions shall be made in the same manner and in the same amount as apprentice and training contributions required pursuant to wage rate determinations made by the Director."

END OF SECTION 00 2113 – INSTRUCTIONS TO BIDDERS

SECTION 00 2400 - BID LOTS (DESCRIPTIONS)

PART 1 - BID LOT IDENTIFICATION

1.1 The scope of work shall be divided into a Base Bid and an Additive Alternate.

1.2 All Bid Lots and Alternates shall include furnishing all the materials and labor related to the work described in each specific Bid Lot/Alternate. The Bid Lots shall include applicable permits, General Conditions, Supplementary Conditions, Special Conditions, Insurance, Bonds, and other overhead items not specifically listed in this paragraph.

1.3 References elsewhere in the Contract Documents to Bid Lots by number and title as established below shall be interpreted to mean the full and entire Bid Lot as described below.

PART 2 – BID LOT DESCRIPTIONS

2.1 BID LOT No. 1 (Base Bid) - Work included in BID LOT No. 1 (Base Bid) shall include all work associated with the general site work improvements as shown in the drawings, including but not limited to, the following:

A. Earthwork to redress grading and drainage
B. Asphalt and concrete paving
C. Parking lot striping and signage
D. All work shown or required not specifically included in Bid Lots 2, 3, 4, 5, and 6.

2.2 BID LOT No. 2 - Work included in Bid Lot No. 2 shall include all work associated with the general upgrades to the HVAC and Electrical systems, including but not limited to, the following:

A. Removal of existing HVAC system Electrical system components as shown in demolition drawings.
B. Renovation and existing HVAC and Electrical systems as shown in drawings.
C. Installation of new HVAC system components and equipment as shown in drawings, including gas service line extensions.
D. Installation of new lighting system components including sensors, fixtures, and building-mounted area lighting.
E. Electrical work associated with the renovation of the HVAC system and the installation of new HVAC equipment.
F. All work shown or required not specifically included in Bid Lots 1, 3, 4, 5 and 6.

2.3 BID LOT No. 3 - Work included in Bid Lot No. 3 shall include all work associated with the general reroofing of the portions of the building as shown in the drawings, including but not limited to the following:

A. Removal of the existing roofing system down to existing deck, to include haul-off
B. Installation of new rigid roof insulation and a modified bitumen roofing system as specified and as shown in the contract drawings.
C. Removal and relocation of existing gas and electrical service lines on the roof as required for reroofing work.
D. Installation of flashings, accessories, gutter reinstallation and replacement, painting, and the reinstallation of communication wiring.
E. All work shown or required not specifically included in Bid Lots 1, 2, 4, 5, and 6.

2.4 BID LOT No. 4 - Work included in Bid Lot No. 4 shall include all work associated with the general construction of new restrooms as shown in the drawings, including but not limited to the following:

A. Demolition and removal of existing plumbing fixtures, interior partitions, light fixtures and associated wiring, and hot water heater and associated piping.
B. Installation of new plumbing fixtures including hot water heater and hot water distribution piping.
C. New interior partitions and associated finish work.
D. New floor and ceiling finishes.
E. New toilet accessories including grab bars.
F. Ventilation and lighting work specifically for the new restrooms.
G. All work shown or required not specifically included in Bid Lots 1, 2, 3, 5, and 6.

2.5 BID LOT No. 5 - Work included in Bid Lot No. 5 shall include all work associated with the general renovation of the building exterior finishes and the new construction of an entrance canopy, including but not limited to the following:

A. Demolition and removal of existing finishes.
B. Repair of damaged wall surfaces prior to application of new finishes.
C. Demolition and removal of existing aluminum storefronts and door assemblies.
D. All work associated with installation of new exterior hollow metal door and window frame assemblies as shown in drawings.
    1. Bid Lot No. 5 includes Bid Alternate No. 1: All work associated with the installation of new exterior aluminum storefront door and window assemblies as shown in the drawings.

E. All work associated with construction of new steel entrance canopy, including footing preparation, concrete work, steel erection, painting and electrical work (lighting and associated wiring).
F. All work shown or required not specifically included in Bid Lots 1, 2, 3, 4 and 6.

2.6 BID LOT No. 6 - Work included in Bid Lot No. 6 shall include all work associated with the general renovation of the building interior consisting of finishes and replacement of doors, including but not limited to the following:

A. Demolition and removal of existing finishes including surface preparation to receive new finishes.
B. Installation of new floor, wall, and ceiling finishes.
C. Demolition and removal of existing door including frame preparation to receive new doors.
D. New doors and associated hardware as scheduled in the drawings.
E. All work shown or required not specifically included in Bid Lots 1, 2, 3, 4 and 5.

END OF SECTION 00 2400 - BID LOTS (DESCRIPTIONS)

SECTION 00 3126.13 - EXISTING ASBESTOS INFORMATION

PART 1 – GENERAL

1.1 SUMMARY

A. A Limited Asbestos Survey of the Grant County Airport Terminal was completed and issued by Construction & Environmental Consultants, Inc.; dated April 5, 2019.
   1. The Survey provided herein following this page is comprised of 17 pages.

B. Neither the Owner nor the Architect guarantee or attest to the accuracy of the information contained in the report. Should the Contractor question the findings of the report or require additional sampling and analysis, the Contractor is then encouraged to perform additional testing at the expense of the Contractor.

C. The Owner has ongoing asbestos identification and remediation protocols. The preliminary identification of suspected asbestos containing material will be referred to the Architect and the Owner for subsequent assessment and if required, remediation.

END OF SECTION 00 3126.13 - EXISTING ASBESTOS INFORMATION

[LIMITED ASBESTOS SURVEY REPORT FOLLOWS]

THIS PAGE INTENTIONALLY LEFT BLANK

LIMITED ASBESTOS SURVEY

Prepared for:
Grant County Airport
Attn: Jason Lockett
188 Airport Rd.
Hurley, New Mexico 88043

Project:
Grant County Airport
188 Airport Rd.
Hurley, New Mexico 88043

Prepared by:
Construction and Environmental Consultants, Inc.
1111 Myrtle Ave.
El Paso TX 79901

DSHS License No.10-0247

Date of Inspection:
April 05, 2019

April 11, 2019

Grant County Airport
Attn: Jason Lockett
188 Airport Rd.
Hurley, New Mexico 88043

Project: Grant County Airport
188 Airport Rd.
Hurley, New Mexico 88043

Dear Mr. Lockett:

Construction and Environmental Consultants, Inc. (CECI) is pleased to submit this report of our Limited Asbestos Survey the above referenced project site. This survey was performed per your request in accordance with our written proposal dated January 15, 2019 and was conducted according to the New Mexico Environmental Department and local regulations regarding asbestos containing materials in public buildings scheduled for demolition or renovation.

This limited asbestos survey was performed by Mr. Alec Felhaber, a Texas licensed Asbestos Inspector, on April 05, 2019

We appreciate the opportunity to be of service to you. Please call if you have any questions or if we may be of further assistance.

Sincerely,

Alec Felhaber
Asbestos Inspector
TDSHS Lic. No. 10-5494

SUMMARY

Construction and Environmental Consultants, Inc. (CECI) presents the findings of a Limited Asbestos Survey performed at Grant County Airport - 188 Airport Rd. Hurley, New Mexico 88043. The purpose of our survey was to identify, locate, and quantify suspect Asbestos-Containing Materials (ACM) in the areas scheduled for renovation,

The analytical results indicate that **asbestos IS present** at or above the regulatory limit of greater than one percent (1%) asbestos in the Tan Marbled 9" x 9" Floor Tile/Black Mastic, Tan Specked 12" x 12" Floor Tile, White Pipe Insulation, White Popcorn Acoustical Ceiling Texture and Black Carpet/Yellow-Black Mastic sampled throughout the building. **These materials will require abatement prior to any renovation activities following all Federal, State and Local regulations governing asbestos.**

INTRODUCTION

The limited asbestos survey was conducted by Mr. Alec Felhaber, a TDSHS Licensed Asbestos Inspector, on April 05, 2019, in accordance with the New Mexico Environmental Department regulations requiring an asbestos inspection for buildings scheduled for renovation, NESHAP 40 CFR 61.145 and all applicable local regulations. For this limited survey nine (9) homogeneous areas were established for suspect ACM. The homogeneous areas include: 9" x 9" Marbled Floor Tile/ Black Mastic (1 type), 6" x 36" vinyl Flooring (1 type), 12" x 12" Floor Tile (1 type), Drywall/ Joint Compound/Texture (2 types),Pipe Insulation (1 type), Popcorn Acoustical Ceiling Tile (1 type), Carpet/Yellow-Black Mastic (1 type) and Cove Base/ Mastic (1 type)

BUILDING DESCRIPTION

The building consists of a concrete slab on grade and CMU building with a build-up roof. Typical interior finishes consist of painted CMU, painted and textured drywall systems and vinyl floor tile finishes.

SAMPLING PLAN

Prior to sampling, a visual survey was performed to establish homogeneous areas. Suspect Asbestos-Containing Materials (ACM) were touched by the inspector to determine their friability. Nine (9) homogeneous areas were identified as suspect materials for asbestos, and three representative samples were collected for each homogeneous area. A homogeneous area is considered as an area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture. Non-suspect building materials that were not sampled during this inspection include: concrete materials, ceramic, and wood materials. CECI did not perform destructive sampling to locate hidden and inaccessible areas. The homogeneous areas established are as follows:

Homogeneous Areas: :

1. 9" x 9" Marbled Floor Tile/ Black Mastic – (1 type) Tan
2. 6" x 36" vinyl Flooring – (1 type) Brown
3. 12" x 12" Floor Tile – (1 type) Tan
4. Drywall/ Joint Compound/Texture – (2 types) Gray (1) & White (1)
5. Pipe Insulation – (1 type) White
6. Popcorn Acoustical Ceiling Tile – (1 type) White
7. Carpet/Yellow-Black Mastic – (1 type) Black
8. Cove Base/ Mastic – (1 type) Brown

ANALYSIS OF BULK SAMPLES

A total of twenty-seven (27) bulk samples were collected and submitted for analysis. Bulk samples collected were sampled following the State of New Mexico Environmental Department protocol and were analyzed for asbestos content at Micro Analytical Services, Inc. located in Houston, Texas utilizing Polarized Light Microscopy (PLM) with optical dispersion staining in accordance with the Environmental Protection Agency (EPA) interim Method 600/R-93/116. An asbestos-containing building material includes any asbestiform varieties of chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite and all materials containing one percent (1%) or more of any of those substances as determined by appendix A, Subpart F, 40 CFR part 763 section 1. Part 61 defines friable ACM as when dry can be pulverized, crushed, or reduced to a powder by hand pressure.

RESULTS

The analytical results indicate **asbestos IS present** at or above the regulatory limit of greater than one percent (1%) asbestos in the white plaster ceiling.

SAMPLE ID.#	MATERIAL DESCRIPTION	LOCATION SAMPLED	APPROXIMATE QUANTITIES	CONDITION ASSESSMENT	ASBESTOS CONTENT
188-01 188-02 188-03	Tan Marbled 9” x 9” Floor Tile/Black Mastic	Janitor’s Closet Floor	TBD	Fair	2% Chrysotile 6% Chrysotile
188-09	Tan Specked 12” x 12” Floor Tile	Men’s Restroom Floor	TBD	Fair	2% Chrysotile 6% Chrysotile
188-16 188-17 188-18	White Pipe Insulation	Restroom’s Ceiling	TBD	Fair	5% Chrysotile
188-19 188-20 188-21	White Popcorn Acoustical Ceiling Texture	Waiting Room Ceiling	TBD	Fair	5% Chrysotile
188-23	Black Carpet/Yellow-Black Mastic	Corner at Counter	TBD	Fair	5% Chrysotile

CONCLUSION

Due to the planned renovation of this building further asbestos investigation is recommended at this time. It is recommended that after vacancy and prior to renovation activities, destructive sampling of walls, ceilings, roof and floors systems be performed to access hidden and otherwise inaccessible materials. If different building areas or materials are encountered during this destructive sampling or other building materials of the structure are disturbed, additional sampling and analysis will be required. It is possible that there are materials containing asbestos that were not found because of the occupancy and lack of destructive sampling, they were not visible or accessible to the inspector, or for various other reasons, were not sampled. This asbestos survey is limited for these reasons.

In the event of future renovation and or demolition, further sampling may be required of suspect asbestos-containing materials prior to these activities to satisfy the Environmental Protection Agency (EPA),

Occupational Safety and Health Administration (OSHA), New Mexico Environmental Department rules and regulations at that time. If suspect asbestos-containing building materials (not noted during this inspection) should be found during any renovation or demolition, these materials should be sampled for asbestos and handled appropriately following all local, state and federal rules and regulations at that time.

The State of New Mexico Environmental Department regulates all ACM in the interior of public buildings. The State of New Mexico Environmental Department states that if disturbance to friable and non-friable asbestos-containing building materials (ACBM) is anticipated, these materials shall be removed by abatement with a licensed asbestos abatement contractor before performing any demolition or renovation activity. The New Mexico Environmental Department states that an abatement project shall require the project be designed by a licensed asbestos consultant. The design plan shall include project management and air monitoring. The New Mexico Environmental Department states that a notification to abate any amount of asbestos must be submitted to the New Mexico Environmental regulation department by the public owner and/or operator. The New Mexico Environmental Department regulation specifies that notification shall be submitted to the department no less than 10 working days prior to commencement of the activity.

LABORATORY: Micro Analytical Services Inc.
ADDRESS: 11301 Richmond Ave., Suite K-100B, Houston, TX 77082

DATE: 4/5/19
PHONE: (281) 497-4500

ASBESTOS CHAIN OF CUSTODY

INSPECTION FIRM: Construction & Environmental Consultants, Inc. ADDRESS: 1111 Myrtle Ave. El Paso, TX 79901
EMAIL: info@cecienvironmental.com; alecf@cecienvironmental.com PHONE: (915) 533-1147
TURN AROUND TIME: ( ) 1 DAY, ( ) 2 DAY, ( ) 3 DAY, ( ) 4 DAY, ( ) 5 DAY – ( ) EMERGENCY
PROJECT: GRANT COUNTY AIRPORT. CLIENT: GRANT COONTY, NM.
PROJECT ADDRESS: 188 AIRPORT RD HURLEY NM.

PROJ. 14724

FIELD ID	LAB ID	SAMPLE DESCRIPTION	SAMPLE LOCATION
01	444560	TAN MARBLED 9"x9" FloorTile/Black MAST.	Janitors Closet flr.
02		" "	" "
03		" "	" "
04		BROWN 6"x 36" Vynil Floor	corner @ Janitors
05		" "	" @ Counter.
06		" "	corner behind counter.
07		TAN SPECKED 12" x12" FLOOR TILE	Entry RIGHT. FLR
08		" "	Entry left. FLR
09		" "	MENS R.R. FLR.
10		TEXTURAY DRYWALL/ SC. /TEXTURE	CORNER @ Corner
11		" "	wall behind Counter.
12		" "	WALL @ entry
13		WHITE DRYWALL/SC/TXT.	WALL @ Janitor.
14		" "	wall @ MensRR
15		" "	WALL @ WOMENS RR
16		WHITE PIPE Insulation ~~DRYWALL/SC/TXT. (PIPE)~~	RESTROOM CEILING
17		" "	" "
18		" "	" "
19		WHITE POPCORN ACOUST CEILING TEXT.	Waiting Room CEILING
20		" "	" " "
21		" "	" " "
22		BLACK Carpet / Yellow Black MASTIC.	Corner @ Janitors
23		" "	" @ Counter
24	444583	" "	corner behind Counter

RELINQUISHED BY: _____ DATE: 4/8/19 TIME: 2:10 pm
RECEIVED BY: _____ DATE: 4/9/19 TIME: 7:30 pm

LABORATORY: Micro Analytical Services Inc.
ADDRESS: 11301 Richmond Ave., Suite K-100B, Houston, TX 77082

DATE: 4/5/19
PHONE: (281) 497-4500

ASBESTOS CHAIN OF CUSTODY

INSPECTION FIRM: Construction & Environmental Consultants, Inc. ADDRESS: 1111 Myrtle Ave. El Paso, TX 79901
EMAIL: info@cecienvironmental.com; alecf@cecienvironmental.com PHONE: (915) 533-1147
TURN AROUND TIME: ( ) 1 DAY, ( ) 2 DAY, ( ) 3 DAY, ( ) 4 DAY, ( ) 5 DAY – ( ) EMERGENCY
PROJECT: GRANT COUNTY AIRPORT CLIENT: GRANT COUNTY
PROJECT ADDRESS: 188 AIRPORT RD HURLEY NM

PROJ. 14721

FIELD ID	LAB ID	SAMPLE DESCRIPTION	SAMPLE LOCATION
25	444584	BROWN MASTIC/COVE BASE	Corner @ Janitors.
26	↓	" "	1' @ Counter.
27	444586	" "	Corner behind counter.
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			

RELINQUISHED BY: _____ DATE: 4/8/19 TIME: 2:10 pm
RECEIVED BY: _____ DATE: 4/9/19 TIME: 7:30 am

Micro Analytical Services, Inc. 11301 Richmond Ave. Ste.K100B♦Houston♦Tx 77082♦Phone(281)497-4500♦Fax(281)497-4517

NVLAP Lab No. 200618-0 TDSHS License No. 30-0341

PLM BULK ASBESTOS ANALYSIS REPORT

CLIENT: Construction & Environmental Consultants, Inc **MAS JOB NO.:** 14721-00

PROJECT: Grant County Airport **REPORT DATE:** April 10, 2019

IDENTIFICATION: Asbestos, Bulk Sample Analysis, Quantitation by Visual Area Estimation

TEST METHOD: Polarized Light Microscopy with Dispersion Staining
EPA Test Method 600/M4-82-020; (40CFR Part 763 Appendix E to Subpart E) &
EPA 600/R-93/116

STATEMENT OF LABORATORY ACCREDITATION

These samples were analyzed at Micro Analytical Services, Inc. in the Asbestos Laboratory at 11301 Richmond Ave. Suite K100B, Houston, Texas, 77082. The Laboratory holds accreditation from the National Institute of Standards and Technology under the National Voluntary Laboratory Accreditation Program (NVLAP). This laboratory is also licensed and authorized to perform as an Asbestos Laboratory in the State of Texas within the purview of Texas Civil Statutes, Article 4477-3a, as amended, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

The samples were analyzed in general accordance with the procedures outlined in the Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/M4-82-020; (40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116 or the U.S. Environmental Protection Agency method, under AHERA, for the analysis of asbestos in building materials by polarized light microscopy. The results of each bulk sample relate only to the material tested and the results shall not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

Specific questions concerning bulk sample results shall be directed to the Asbestos Bulk Laboratory at Micro Analytical Services, Inc.

Analyst: Tony T. Dang

Approved Signatory: 

Micro Analytical Services, Inc. 11301 Richmond Ave. Ste. K100B♦Houston♦Texas 77082♦Phone(281) 497-4500♦Fax(281) 497-4517

Polarized Light Microscopy Analysis

Construction & Environmental Consultant, Inc.
1111 Myrtle Ave.
El Paso, Texas 79901

MAS Project #: 14721-00
Date Received: 04/09/2019
Date Analyzed: 04/10/2019

Project Name: Grant County Airport

Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)
DACA-01 MAS444560	1	Beige fibrous floor tile	Yes	2% Chrysotile	98% Other
DACA-01 MAS444560	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-01 MAS444560	3	Black fibrous mastic	Yes	6% Chrysotile	94% Mastic
DACA-02 MAS444561	1	Beige fibrous floor tile	Yes	2% Chrysotile	98% Other
DACA-02 MAS444561	2	Black fibrous mastic	Yes	6% Chrysotile	94% Mastic
DACA-03 MAS444562	1	Beige fibrous floor tile	Yes	2% Chrysotile	98% Other
DACA-03 MAS444562	2	Black fibrous mastic	Yes	6% Chrysotile	94% Mastic
DACA-04 MAS444563	1	Brown non-fibrous vinyl floor sheeting	No		100% Vinyl
DACA-04 MAS444563	2	Clear yellow non-fibrous mastic	No		100% Mastic
DACA-05 MAS444564	1	Brown non-fibrous vinyl floor sheeting	No		100% Vinyl
DACA-05 MAS444564	2	Clear yellow non-fibrous mastic	No		100% Mastic
DACA-06 MAS444565	1	Brown non-fibrous vinyl floor sheeting	No		100% Vinyl
DACA-06 MAS444565	2	Clear yellow non-fibrous mastic	No		100% Mastic
DACA-07 MAS444566	1	Beige non-fibrous floor tile	No		100% Other

Samples have been analyzed by the EPA Interim Method 600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116. The test results herein relate only to the sample submitted and analyzed. This report may only be reproduced in full with the approval of the Bulk Asbestos Laboratory of Micro Analytical Services (MAS). The above percentages are visual estimates of area percent. MAS is not responsible for any errors resulting from improper or incorrect sampling or shipping procedures. These samples will be retained for a period of 30 days. Accreditation by NVLAP in no way constitutes or implies product certification, approval, or endorsement by NIST. Some materials, especially floor tiles, contain asbestos fibers too thin to be detected by this method.
NVLAP Lab Code: 200618 TDSHS License: 30-0341

Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang

Micro Analytical Services, Inc. 11301 Richmond Ave. Ste. K100B♦Houston♦Texas 77082♦Phone(281) 497-4500♦Fax(281) 497-4517

Polarized Light Microscopy Analysis

Construction & Environmental Consultant, Inc.
1111 Myrtle Ave.
El Paso, Texas 79901

MAS Project #: 14721-00
Date Received: 04/09/2019
Date Analyzed: 04/10/2019

Project Name: Grant County Airport

Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)
DACA-07 MAS444566	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-08 MAS444567	1	Beige non-fibrous floor tile	No		100% Other
DACA-08 MAS444567	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-09 MAS444568	1	Beige non-fibrous floor tile	No		100% Other
DACA-09 MAS444568	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-09 MAS444568	3	Beige fibrous floor tile	Yes	2% Chrysotile	98% Other
DACA-09 MAS444568	4	Black fibrous mastic	Yes	6% Chrysotile	94% Mastic
DACA-10 MAS444569	1	Grey non-fibrous paint	No		100% Other
DACA-10 MAS444569	2	White fibrous gypsum with brown paper	No		40% Cellulose 60% Gypsum
DACA-11 MAS444570	1	Grey non-fibrous paint	No		100% Other
DACA-11 MAS444570	2	White fibrous gypsum with brown paper	No		40% Cellulose 60% Gypsum
DACA-12 MAS444571	1	Grey non-fibrous paint	No		100% Other
DACA-12 MAS444571	2	White fibrous gypsum with brown paper	No		40% Cellulose 60% Gypsum
DACA-13 MAS444572	1	White fibrous gypsum with brown paper	No		40% Cellulose 60% Gypsum

Samples have been analyzed by the EPA Interim Method 600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116. The test results herein relate only to the sample submitted and analyzed. This report may only be reproduced in full with the approval of the Bulk Asbestos Laboratory of Micro Analytical Services (MAS). The above percentages are visual estimates of area percent. MAS is not responsible for any errors resulting from improper or incorrect sampling or shipping procedures. These samples will be retained for a period of 30 days. Accreditation by NVLAP in no way constitutes or implies product certification, approval, or endorsement by NIST. Some materials, especially floor tiles, contain asbestos fibers too thin to be detected by this method.
NVLAP Lab Code: 200618 TDSHS License: 30-0341

Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang

Micro Analytical Services, Inc. 11301 Richmond Ave. Ste. K100B♦Houston♦Texas 77082♦Phone(281) 497-4500♦Fax(281) 497-4517

Polarized Light Microscopy Analysis

Construction & Environmental Consultant, Inc.
1111 Myrtle Ave.
El Paso, Texas 79901

MAS Project #: 14721-00
Date Received: 04/09/2019
Date Analyzed: 04/10/2019

Project Name: Grant County Airport

Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)
DACA-14 MAS444573	1	White non-fibrous texture with white paint	No		100% Other
DACA-14 MAS444573	2	White fibrous gypsum with brown paper	No		40% Cellulose 60% Gypsum
DACA-15 MAS444574	1	White non-fibrous texture with white paint	No		100% Other
DACA-15 MAS444574	2	White fibrous gypsum with brown paper	No		40% Cellulose 60% Gypsum
DACA-16 MAS444575	1	Grey fibrous insulation	Yes	5% Chrysotile	15% fibrous Glass 80% Other
DACA-16 MAS444575	2	Yellow fibrous glass insulation	No		100% fibrous Glass
DACA-17 MAS444576	1	Grey fibrous insulation	Yes	5% Chrysotile	15% fibrous Glass 80% Other
DACA-17 MAS444576	2	Yellow fibrous glass insulation	No		100% fibrous Glass
DACA-18 MAS444577	1	Grey fibrous insulation	Yes	5% Chrysotile	15% fibrous Glass 80% Other
DACA-18 MAS444577	2	Yellow fibrous glass insulation	No		100% fibrous Glass
DACA-19 MAS444578	1	White fibrous popcorn texture with white paint	Yes	5% Chrysotile	20% Foam 75% Other
DACA-20 MAS444579	1	White fibrous popcorn texture with white paint	Yes	5% Chrysotile	20% Foam 75% Other
DACA-21 MAS444580	1	White fibrous popcorn texture with white paint	Yes	5% Chrysotile	20% Foam 75% Other
DACA-22 MAS444581	1	Brown/black fibrous carpet	No		70% Synthetic 30% Other

Samples have been analyzed by the EPA Interim Method 600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116. The test results herein relate only to the sample submitted and analyzed. This report may only be reproduced in full with the approval of the Bulk Asbestos Laboratory of Micro Analytical Services (MAS). The above percentages are visual estimates of area percent. MAS is not responsible for any errors resulting from improper or incorrect sampling or shipping procedures. These samples will be retained for a period of 30 days. Accreditation by NVLAP in no way constitutes or implies product certification, approval, or endorsement by NIST. Some materials, especially floor tiles, contain asbestos fibers too thin to be detected by this method.
NVLAP Lab Code: 200618 TDSHS License: 30-0341

Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang

Micro Analytical Services, Inc. 11301 Richmond Ave. Ste. K100B♦Houston♦Texas 77082♦Phone(281) 497-4500♦Fax(281) 497-4517

Polarized Light Microscopy Analysis

Construction & Environmental Consultant, Inc.
1111 Myrtle Ave.
El Paso, Texas 79901

MAS Project #: 14721-00
Date Received: 04/09/2019
Date Analyzed: 04/10/2019

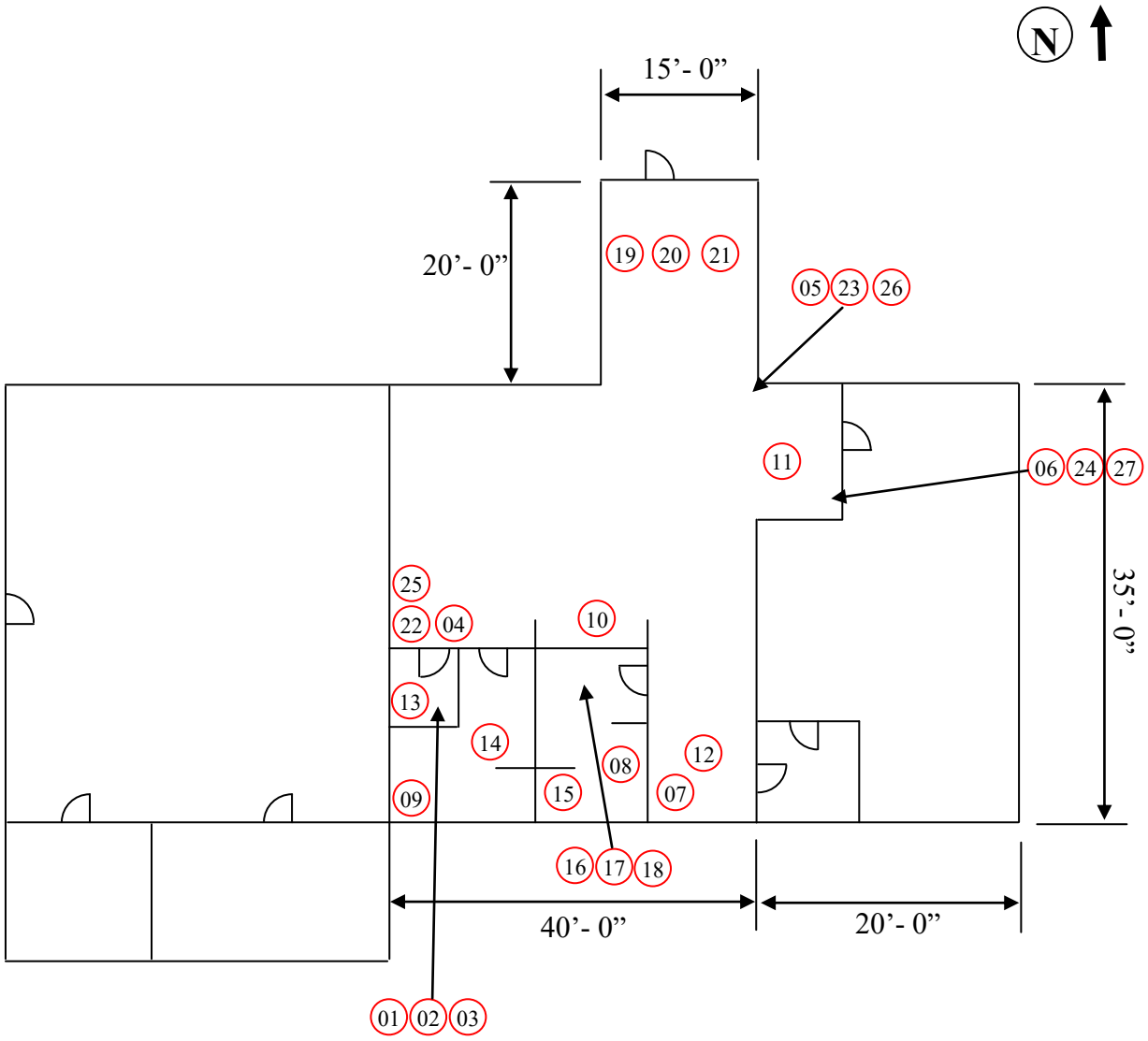
Project Name: Grant County Airport

Field ID/ Lab ID	Layer #	Sample Description	Asbestos Detected? (Yes/No)	Asbestos Constituents (%)	Non-Asbestos Constituents (%)
DACA-22 MAS444581	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-23 MAS444582	1	Brown/black fibrous carpet	No		70% Synthetic 30% Other
DACA-23 MAS444582	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-23 MAS444582	3	Black fibrous mastic	Yes	5% Chrysotile	95% Mastic
DACA-24 MAS444583	1	Brown/black fibrous carpet	No		70% Synthetic 30% Other
DACA-24 MAS444583	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-25 MAS444584	1	Tan non-fibrous cove base	No		100% Vinyl
DACA-25 MAS444584	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-26 MAS444585	1	Tan non-fibrous cove base	No		100% Vinyl
DACA-26 MAS444585	2	Yellow non-fibrous mastic	No		100% Mastic
DACA-27 MAS444586	1	Tan non-fibrous cove base	No		100% Vinyl
DACA-27 MAS444586	2	Yellow non-fibrous mastic	No		100% Mastic

Samples have been analyzed by the EPA Interim Method 600/M4-82-020(40CFR Part 763 Appendix E to Subpart E) & EPA 600/R-93/116. The test results herein relate only to the sample submitted and analyzed. This report may only be reproduced in full with the approval of the Bulk Asbestos Laboratory of Micro Analytical Services (MAS). The above percentages are visual estimates of area percent. MAS is not responsible for any errors resulting from improper or incorrect sampling or shipping procedures. These samples will be retained for a period of 30 days. Accreditation by NVLAP in no way constitutes or implies product certification, approval, or endorsement by NIST. Some materials, especially floor tiles, contain asbestos fibers too thin to be detected by this method.
NVLAP Lab Code: 200618 TDSHS License: 30-0341

Analyzed by: Tony Dang

Approved NVLAP Signatory: Tony Dang



Floor Plan Not To Scale

Construction & Environmental Consultants, Inc.

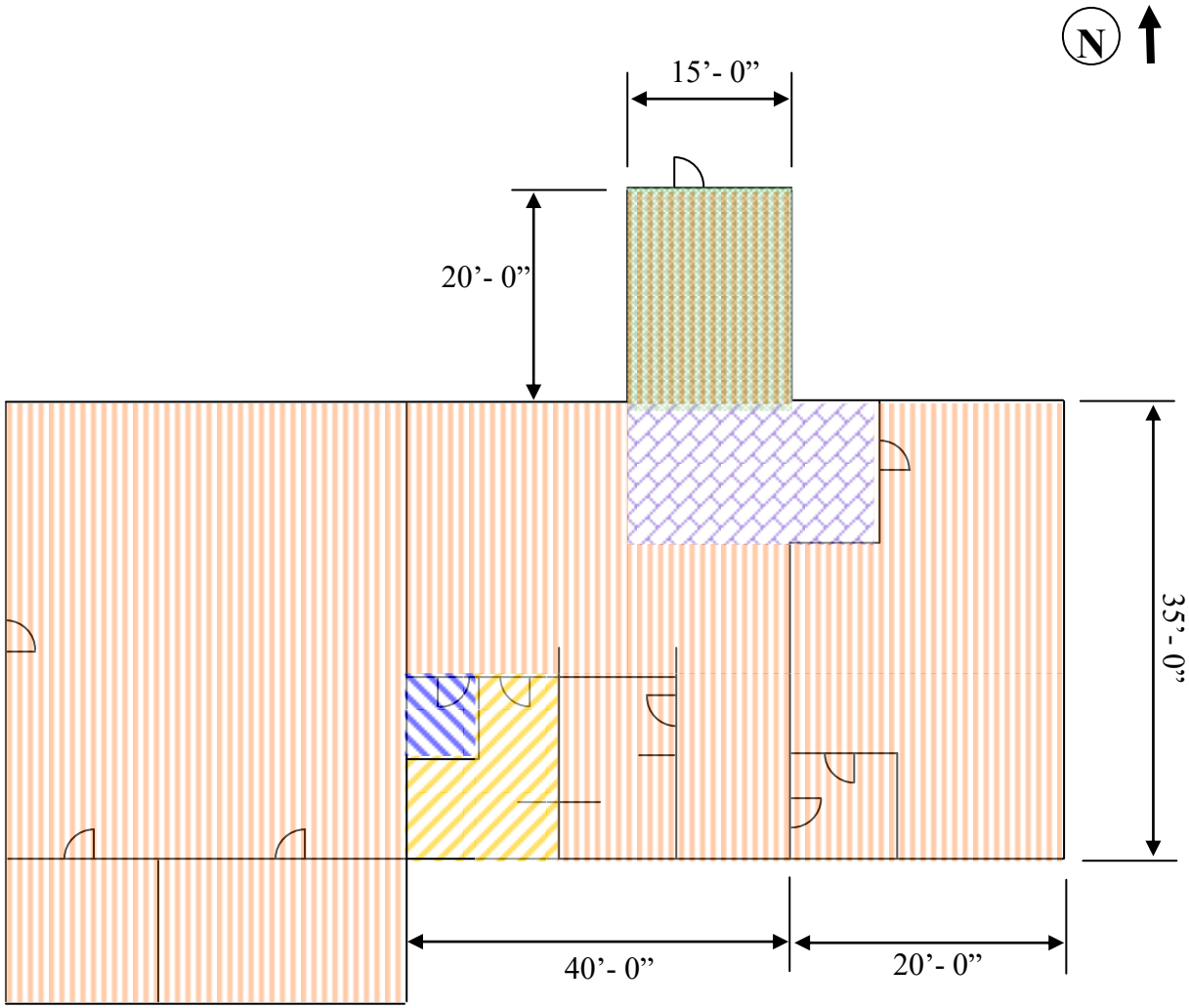
Asbestos Sample Locations Floor Plan

00 Sample Locations

PROJECT NUMBER: 19E1239
PROJECT LOCATION: 188 Airport Rd. Hurley, NM 88043

DATE: April 5, 2019	SHEET 1/1

INSPECTOR SIGNATURE:



Construction & Environmental Consultants, Inc.

Homogeneous Areas Floor Plan

- Tan Marbled 9”x9” Floor Tile/Black Mastic
- Tan Specked 12”x12” Floor Tile
- Assumed Black Mastic & White Pipe Insulation
- White Popcorn Acoustical Ceiling Texture
- Black Carpet/Yellow-Black Mastic

PROJECT NUMBER:
19E1239

PROJECT LOCATION:
188 Airport Rd. Hurley, NM 88043

DATE:
April 15, 2019

SHEET 1/1

INSPECTOR SIGNATURE:

Floor Plan Not To Scale

Texas Department of State Health Services

CONSTRUCTION AND ENVIRONMENTAL CONSULTANTS INC

is certified to perform as an

Asbestos Consultant Agency

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.

License Number: 100247

Expiration Date: 11/03/2020

John Hellerstedt, M.D.,
Commissioner of Health

Control Number: 97146

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

SEE BACK

TEXAS
Health and Human Services

Texas Department of State Health Services

John Hellerstedt, M.D.
Commissioner

Dear Applicant:

Your License/Registration is enclosed. Please verify that all information is correct.

Please contact the Environmental and Sanitation Licensing Group at 512-834-6600 if you have any questions.

Estimado Aplicante:

Adjunto encontrará su licencia/registración. Favor de verificar que su información personal estè correcta.

Si tiene alguna pregunta o duda, favor de llamar al Departamento de Licencias al número de teléfono 512-834-6600.

Texas Department of State Health Services

Asbestos Individual Consultant

Sincerely,
Atentamente,

ALEC FELHABER
License No. 105494
Control No. 97219
Expiration Date: 4/24/2019

Regulatory Licensing
Environmental & Sanitation Licensing Group

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

MICRO ANALYTICAL SERVICES INC

is certified to perform as a

Asbestos Laboratory
PCM, PLM

in the State of Texas within the purview of Texas Occupations Code, chapter 1954, so long as this license is not suspended or revoked and is renewed according to the rules adopted by the Texas Board of Health.

JOHN HELLERSTEDT, M.D.
COMMISSIONER OF HEALTH

License Number: 300341

Expiration Date: 1/25/2020

Control Number: 96255

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

SECTION 00 3126.16 - EXISTING LEAD-BASED PAINT INFORMATION

PART 1 – GENERAL

1.1 SUMMARY

A. The Limited Lead-Based Paint Inspection of the Grant County Airport Terminal was completed and issued by Construction & Environmental Consultants, Inc.; dated April 29, 2019.
   1. The Inspection Report provided herein following this page is comprised of 20 pages.

B. Neither the Owner nor the Architect guarantee or attest to the accuracy of the information contained in the report. Should the Contractor wish to question the findings of the report or require additional sampling and analyses, the Contractor is then encouraged to perform additional testing at the expense of the Contractor.

C. The Owner has an ongoing lead-based paint identification and remediation protocol. The preliminary identification by the Contractor of the presence of suspected lead-based paint will be referred to the Architect and the Owner for subsequent assessment and if required, remediation.

END OF SECTION 00 3126.16 - EXISTING LEAD-BASED PAINT INFORMATION

[LIMITED LEAD-BASED PAINT INSPECTION REPORT FOLLOWS]

THIS PAGE INTENTIONALLY LEFT BLANK

LIMITED LEAD-BASED PAINT INSPECTION

Prepared for:
Grant County Airport
Attn: Jason Lockett
188 Airport Rd.
Hurley, New Mexico 88043

Project:
Grant County Airport
188 Airport Rd.
Hurley, New Mexico 88043

Prepared by:
Construction and Environmental Consultants, Inc.
1111 Myrtle Ave.
El Paso TX 79901

DSHS License No.10-0247

Date of Inspection:
April 29, 2019

Inspector/Risk Assessor: Alec Felhaber (TX Risk Assessor: 20-70958)

Report Preparer: Alec Felhaber (TX Risk Assessor: 20-70958)

April 29, 2019

Grant County Airport
Attn: Jason Lockett
188 Airport Rd.
Hurley, New Mexico 88043

Project: Grant County Airport
188 Airport Rd.
Hurley, New Mexico 88043

Dear Mr. Lockett:

Please find enclosed the Lead-Based Paint Inspection report for the single-family dwelling located at **Grant County Airport** 188 Airport Rd. Hurley, New Mexico 88043 The Lead-Based Paint Inspection was performed by Construction and Environmental Consultants, Inc, (CECI), (Cert. No. 2070958 Exp. 07-10-2019 This report is based on the clients request to obtain limited sampling and analysis of the existing paints, it is not intended to be in general compliance with the Housing and Urban Development (HUD) Guidelines for Lead Based Paint-Chapter 7 (revised 1997) and all applicable local and State regulations.

The Lead-Based Paint Inspection was performed on April 29, 2019 by, Alec Felhaber (Lead Risk Assessor: Cert. No. 2070958 Exp. 07-10-2019). As part of the assessment, a visual survey of the property and structure was conducted, XRF testing was performed using a Niton XLp-300A, Serial #100456, X-Ray fluorescence (XRF) lead paint analyzer to sample painted and/or finished components. Radiation safety procedures as required by the U.S. Nuclear Regulatory Commission and applicable state and location regulations were followed when using the XRF instrument.
Construction and Environmental Consultants, Inc. has determined that there is <u>NO</u> lead-based paint in the property at concentration at or above 1.0 mg/cm^2.

The associated report was prepared by Alec Felhaber.

If you have any questions or comments, please feel free to contact us at (915) 533-1147.
Sincerely,

Alec Felhaber
TX LBP Inspector/Risk Assessor

Construction & Environmental Consultants, Inc.
Enclosure: Lead-Based Paint Inspection

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

CECI has been authorized by Mr. Lockett to perform a Lead-Based Paint (LBP) Inspection at the Commercial building located at **Grant County Airport** 188 Airport Rd. Hurley, New Mexico 88043. The point of contact for this property is Mr. Lockett Representative sampling and analysis of all painted and/or finished components were evaluated according to the client's request.

According to the guidelines, a lead reading by XRF of 1.0 mg/cm^2 or above is considered positive for the presence of LBP. This action level will be referenced throughout the report.

Components having lead levels at or above the action level are visually assessed for condition and approximate surface area. Those LBP surfaces found to be in intact condition at the time of inspection do not require paint stabilization, but should be monitored on an ongoing basis. This report will only recommend LBP surfaces identified as deteriorated at the time of the inspection for paint stabilization.

During the Lead-Based Paint Inspection, XRF testing was performed. The XRF testing was conducted using a Niton XLp-300A lead paint analyzer. A surface-by-surface visual assessment of the painted and/or finished surfaces was conducted to determine the conditions of all painted surfaces.

Construction and Environmental Consultants, Inc. has determined that there is <u>NO</u> lead-based paint in the property at concentration at or above 1.0 mg/cm^2. These findings are based on the onsite XRF analysis.

The Lead-Based Paint Inspection at this property was performed on April 29, 2019.

SECTION 1.0: SCOPE OF INSPECTION

1.1 Scope of Work

CECI performed a Lead-Based Paint (LBP) Inspection for lead-based paint at **Grant County Airport** 188 Airport Rd. Hurley, New Mexico 88043 Alec Felhaber (Lead Risk Assessor: Cert. No. 2070958 Exp. 07-10-2019) conducted the Lead-Based Paint Inspection. Representative sampling of all painted and/or finished components were tested onsite utilizing XRF. During the Lead-Based Paint Inspection, an action level of 1.0 mg/cm^2 was followed to determine the components that contained LBP, in accordance with Federal, State, and Local regulations.

1.2 Training Requirements

All individuals who performed this XRF testing and visual assessment have EPA and/or State licensure as Lead Inspector and have been trained in the use, calibration and maintenance of the XRF, along with the principles of radiation safety, in accordance with the work practices of 40 CFR 745, section 227, for States and Indian Tribes.

1.3 Equipment

The XRF used for this Lead-Based Paint Inspection was a Niton XLp-300A bearing Serial # 100456. The Isotope is a 40 mci – cd 109 dated 12-14-16. CECI followed the Performance Characteristics Sheet (PCS) for the specific X-Ray fluorescence instrument (XRF) used during the LBP

Inspection of the property. The XRF PCS is presented in Appendix D. Calibration readings were taken in the time corrected (30 second) mode and the actual readings were taken in quick mode.

SECTION 2.0: METHODOLOGY

2.1 Sampling Strategies

A lead reading by XRF of 1.0 mg/cm^2 or above is considered positive for the presence of LBP. An XRF reading below 1.0 mg/cm^2 is considered negative; however, a reading below 1.0 mg/cm^2 could still be harmful if proper precautions are not taken during activities that disturb these paint films.
Only painted, stained, varnished, or wallpapered components of a dwelling are tested during a LBP Inspection.

2.3 Assessment Logic

A LBP Inspection is performed by use of the following assessment logic. Any paint found to contain lead below the HUD standard of 1.0 mg/cm^2, regardless of condition, is considered non-hazardous. Components having lead levels at or above the action level are visually assessed for condition and approximate surface area.

2.4 Calibration of XRF Equipment

The calibration of the instrument is done in accordance with the Performance Characteristic Sheet (PCS) for this instrument. These instruments are calibrated using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g. for NIST SRM 2579, 1.0 mg/cm^2 film would be used).

SECTION 3.0: FINDINGS

3.1 Site Description

The building consists of a concrete slab on grade and CMU building with a build-up roof. Typical interior finishes consist of painted CMU, painted and textured drywall systems and vinyl floor tile finishes.

3.2 Inaccessible Areas

*None

3.3 Visual Assessment Results

The visual assessment identified the following:

Item	Identified Yes/No
Deteriorating painted surfaces	No
Painted surfaces that are chewable, impact joints or subject to friction	No
Bare soil surface (soil surface that is not covered by pavement or sod or landscaping	No
Excessive accumulation dust on most interior surfaces	No

3.4 Lead-Based Paint Inspection Results

Construction and Environmental Consultants, Inc. has determined that there is NO lead-based paint in the property at concentration at or above 1.0 mg/cm^2. These findings are based on the onsite XRF analysis.

INTERIOR COMPONENTS:

None

EXTERIOR COMPONENTS:

None

3.5 Summary and Distribution Table

Number of Positive Readings	0
Total Number of Readings	44
Percent Positive	0%

3.6 Risk Assessment

Per the client's request, a risk assessment was not performed.

SUMMARY OF LEAD-BASED PAINT REQUIREMENTS BY ACTIVITY

Rehabilitation 24 CFR Part 35 Subpart J			
	Property receiving less than or equal to $5000.00	Property receiving more than $5000.00 and up to $25,000.00	Property receiving more than $25,000.00
Lead Hazard Evaluation	Paint Testing	Paint Testing and Risk Assessment	Paint Testing and Risk Assessment
Rehabilitation 24 CFR Part 35 Subpart J			
Lead Hazard Reduction	Repair surfaces disturbed during rehabilitation. Safe work practices. Clearance of work site.	Interim controls. Safe work practices. Clearance of each unit.	Abatement (Interim Controls on exterior surfaces not disturbed by rehabilitation. Safe work practices. Clearance of each unit.
Options	Presume lead-based paint. Use safe work practices on all surfaces.	Presume lead-based paint and/or hazards. Abate all applicable surfaces.	Presume lead-based paint and/or hazards. Use standard treatments.

SECTION 4.0: CONCLUSIONS

The results of this inspection indicate that lead in amounts greater than 1.0 mg/cm2 was NOT found on any interior and exterior building components of the dwelling unit. The lead-based paint identified in the component was in Fair condition.

Effective April 22, 2010 the Environmental Protection Agencies rule requiring lead safe work practices for contractors performing renovation, repair, painting and demolition activities in homes built prior to 1978 became enforceable. This rule regulates common renovation activities such as sanding, cutting and demolition which can create hazardous lead dust and chips by disturbing lead-based paint. This rule requires that firms performing renovation, repair or painting activities be certified by the EPA and use workers trained by EPA approved training providers. In general, the lead safe work practices include procedures to contain the work area, minimize dust and clean up thoroughly.

Some painted surfaces may contain levels of lead above 1.0 mg/cm^2, which could create lead dust or lead-contaminated soil hazards if the paint is turned into dust by abrasion, scraping, sanding or friction. Further, all inaccessible areas of the property must be assumed to be positive for lead, even though they were not tested. Any inaccessible areas encountered during the LBP Inspection/Risk Assessment are noted in Section 3.2.

SECTION 5.0: DISCLOSURE DESPONSIBILITY

A copy of this report must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract.

The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lesser) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that children and pregnant women are protected from LBP hazards.

The Occupational Safety and Health Administration (OSHA) Lead in Construction Standard states that "negative" readings (i.e. those below the HUD/EPA definition of what constitutes LBP [1.0 mg/cm^2]) **do not relieve** contractors from performing exposure assessments (personal air monitoring) on their employees per the OSHA Lead Standard, and should not be interpreted as lead free. Although a reading may indicate "negative", airborne lead concentrations still may exceed the OSHA Action Level or the OSHA Permissible Exposure Limit (PEL) depending on the work activity.

DISCLAIMER

This is our report of a visual survey, X-Ray Fluorescence (XRF) analysis, lead dust wipe and soil sampling analysis of the readily accessible areas of this building and tested components. The presence or absence of LBP or LBP hazards applies only to the tested or assessed surfaces on the date of the field visit and it should be understood that conditions may change due to deterioration or maintenance. The results and material conditions noted within this report were accurate at the time of the Inspection and in no way reflect the conditions at the property after the date of the Inspection. No other environmental concerns or conditions were addressed during this Inspection.

APPENDIX A
XRF DATA
SHEETS

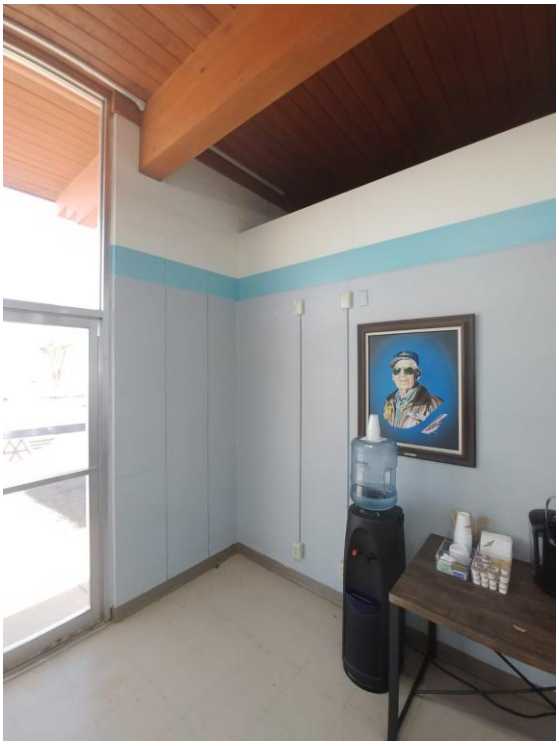
XRF Reading	Room	Side	Component	Substrate	Color	Condition	Lead Conc. (mg/cm²)
2635	-	-	CALIBRATION	-	-	-	0.01=0.00
2636	-	-	CALIBRATION	-	-	-	0.01=0.00
2637	-	-	CALIBRATION	-	-	-	0.01=0.00
2638	-	-	CALIBRATION	-	-	-	1.00=1.01
2639	-	-	CALIBRATION	-	-	-	1.00=1.01
2640	-	-	CALIBRATION	-	-	-	1.00=1.01
2641	Interior	A	CMU	Block	Gray	Fair	0.00
2642	Interior	A	Wall	Drywall	Gray	Fair	0.00
2643	Interior	B	Wall	Drywall	Light Blue	Fair	0.01
2644	Private Entry	A	Door Frame	Wood	Gray	Fair	0.05
2645	Private Entry	A	Door	Wood	Brown	Fair	0.01
2646	Women Restroom	A	Wall	Drywall	White	Fair	0.01
2647	Women Restroom	A	Ceiling	Drywall	White	Fair	0.01
2648	Women Restroom	A	CMU Wall	Brick	Purple	Fair	0.25
2649	Men’s Restroom	A	Door Frame	Wood	Brown	Fair	0.00
2650	Men’s Restroom	A	Door	Wood	Brown	Fair	0.00
2651	Men’s Restroom	B	Wall	Drywall	White	Fair	0.05
2652	Men’s Restroom	A	Ceiling	Drywall	White	Fair	0.01
2653	Men’s Restroom	A	CMU Wall	Brick	White	Fair	0.01
2654	Janitor Closet	A	Door Frame	Wood	Gray	Fair	0.05
2655	Janitor Closet	A	Door	Wood	White	Fair	0.03
2656	Janitor Closet	A	Wall	Drywall	White	Fair	0.00
2657	Janitor Closet	A	Ceiling	Drywall	White	Fair	0.00
2658	Janitor Closet	A	Cove base	Wood	White	Fair	0.04
2659	Janitor Closet	A	Shelving	Wood	White	Fair	0.05
2660	Janitor Closet	A	Mop Rack	Wood	White	Fair	0.02
2661	Lobby	A	CMU Wall	Brick	Blue	Fair	0.00
2662	Lobby	B	CMU Wall	Brick	Gray	Fair	0.00
2663	Lobby	C	CMU Wall	Brick	White	Fair	0.00
2664	Lobby	D	CMU Wall	Brick	Blue	Fair	0.00
2665	Lobby	A	Semi-exterior Sheeting CMU	Brick	Blue	Fair	0.00
2666	Maintenance Shop	A	CMU	Brick	White	Fair	0.00

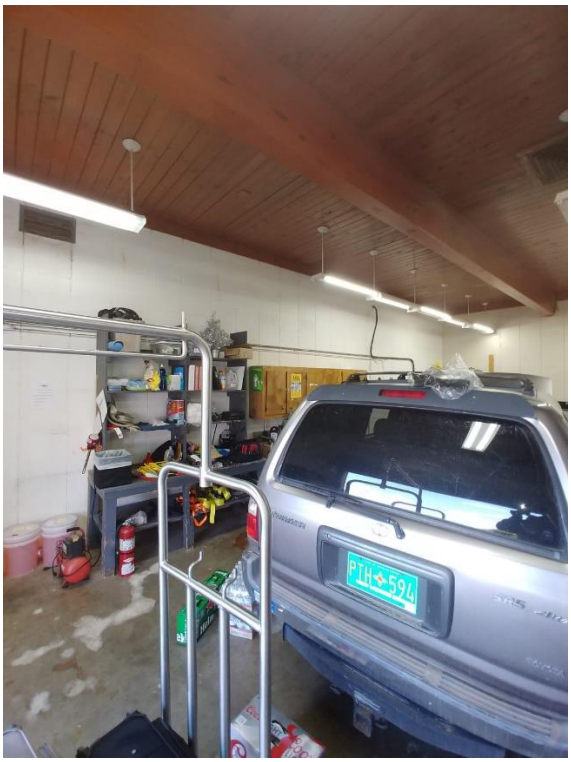
2667	Maintenance Shop	A	Plywood Wainscot	Wood	White	Fair	0.00
2668	Maintenance Shop	A	Wall	Drywall	White	Fair	0.00
2669	Food Pantry	A	Wall	Drywall	White	Fair	0.03
2670	Food Pantry	A	Door	Wood	Brown	Fair	0.00
2671	Food Pantry	A	Door Frame	Wood	Brown	Fair	0.00
2672	Food Pantry	A	Paneling	Drywall	Brown	Fair	0.07
2673	Food Pantry	B	Wall	Drywall	White	Fair	0.00
2674	Food Pantry	A	Transition Trim	Wood	Green	Fair	0.01
2675	Food Pantry	A	Door Frame	Wood	Orange	Fair	0.02
2676	Food Pantry	A	Popcorn Acoustical Ceiling	Drywall	White	Fair	0.00
2677	Food Pantry	A	Trim Upper Window	Wood	gray	Fair	0.00
2678	Food Pantry	A	Ceiling Plank	Drywall	Brown	Fair	0.02
2679	Garage	A	Fire Extinguisher	Wood	White	Fair	0.00
2680	Exterior	A	Roof Beam	Wood	Red	Fair	0.17
2681	Exterior	A	Soffit	Wood	Red	Fair	0.19
2682	Exterior	A	Siding	Wood	Red	Fair	0.00
2683	Exterior	A	Textured CMU	Brick	Yellow	Fair	0.00
2684	-	-	CALIBRATION	-	-	-	0.00=0.01
2685	-	-	CALIBRATION	-	-	-	0.00=0.01
2686	-	-	CALIBRATION	-	-	-	0.00=0.01
2687	-	-	CALIBRATION	-	-	-	1.00=1.01
2688	-	-	CALIBRATION	-	-	-	1.00=1.01
2689	-	-	CALIBRATION	-	-	-	1.00=1.01

APPENDIX B
PHOTOGRAPHS

Construction & Environmental Consultants, Inc.

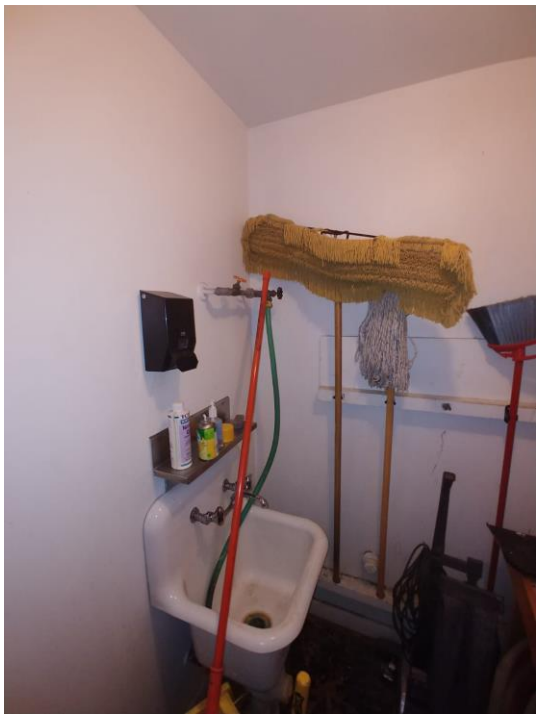
Photographic Log **Page:** 1 of 2
Project: Grant County Airport
Project No.: 19E1239 **Date:** April 29, 2019
Project Address: 188 Airport Rd. Hurley, New Mexico 88043

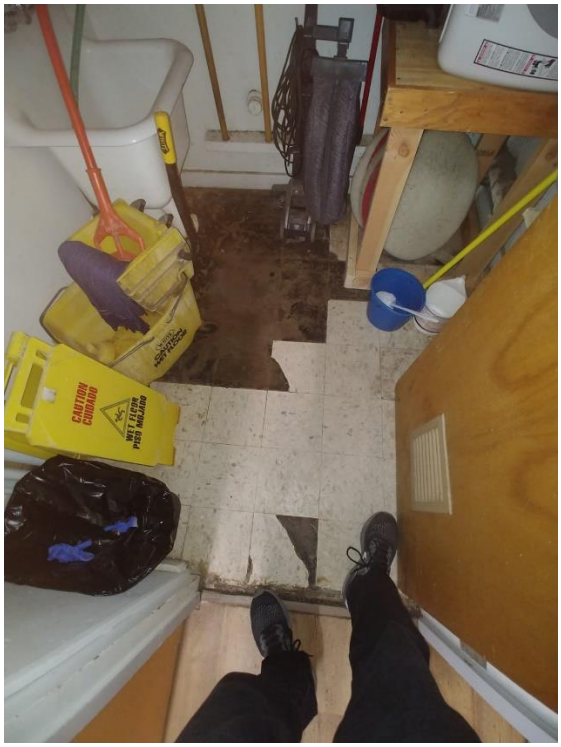




Construction & Environmental Consultants, Inc.

Photographic Log **Page:** 2 of 2
Project: Grant County Airport
Project No.: 19E1239 **Date:** April 29, 2019
Project Address: 188 Airport Rd. Hurley, New Mexico 88043





APPENDIX C
CERTIFICATIONS

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

Be it known that

ALEC FELHABER

is certified to perform as a

Lead Risk Assessor

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1955 and Title 25, Texas Administrative Code, Chapter 295 relating to Texas Environmental Lead Reduction, as long as this license is not suspended or revoked.

John Hellerstedt, M.D.
Commissioner of Health

License Number: 2070958

Expiration Date: 7/10/2019

Void After Expiration Date

VOID IF ALTERED

Control Number 7379

NON-TRANSFERABLE

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

Be it known that

CONSTRUCTION & ENVIRONMENTAL CONSULTANTS INC

is certified to perform as a

Lead Firm

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1955 and Title 25, Texas Administrative Code, Chapter 295 relating to Texas Environmental Lead Reduction, as long as this license is not suspended or revoked.

John Hellerstedt, M.D.
Commissioner of Health

License Number: 2110180

Control Number 6918

Expiration Date: 8/2/2019

(Void After Expiration Date)

VOID IF ALTERED NON-TRANSFERABLE

APPENDIX D
PERFORMANCE CHARACTERISTIC SHEET

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*
Tested Model: *XLp 300*
Source: ^{109}Cd
Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.
XLp 300A, XLp 301A, XLp 302A and XLp 303A.
XLi 700A, XLi 701A, XLi 702A and XLi 703A.
XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

SECTION 00 4113 - BID FORM: PRICES

PROJECT NAME: Grant County Airport Terminal Renovation
Grant County, New Mexico

BID NUMBER: Grant County IFB No. B-20-02
AIP Project No. 3-35-0039-021-2019
NMDOT – Aviation Division Grant No. SVC-19-03

Herein after called Bidder, a (corporation, partnership, individual).

State of incorporation _____

TO: Purchasing Agent
Grant County, New Mexico

The undersigned Bidder, in response to the Invitation for Bids, and having examined the Site and Bidding Documents entitled Grant County Airport Terminal Renovations, Grant County IFB No. **B-20-0** prepared by ASA Architects, and the Addenda acknowledged below, and being familiar with all conditions surrounding the construction of the proposed project including availability of materials, equipment, and labor, hereby proposes to perform all work for the construction of the above referenced project for the prices stated below.

In submitting this Bid, the Bidder represents to the Owner that the Bidder has the financial capability and experience to complete the Work and agrees to the following:

1. To hold to the terms of the Bid for 60 days from the bid opening date.

2. To accept the provisions of the Instructions to Bidders.

3. To enter into and execute a Contract with Grant County if awarded on the basis of this Bid, and to furnish a Performance Bond and Labor and Materials Payment Bonds.

4. To accomplish the work in accordance with the Contract Documents.

5. To complete the work within 210 days from the commencement date set in a Notice to Proceed.

6. To pay as liquidated damages the sum of $300.00 for each consecutive calendar day past the date set for substantial completion of the Work that the work is not completed.

The Bidder acknowledges receipt of the following Addenda:

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

The prices set forth in this Bid Form include all work necessary to complete the construction, including overhead, profit, items of incidental expenses, permits, taxes except New Mexico Gross Receipts Tax and local option tax(es), and any other expenses applicable to complete the Work. It is understood that New Mexico Gross Receipts Tax and local option tax(es) will be paid by the Owner and are to be included as a separate line item on Applications for Payment.

BID LOT NO. 1 (Base Bid) – SITE WORK:
The Bidder agrees to construct this portion of the Work for the following lump sum price:

_____Dollars
(bid amount in words)

$ _____
(bid amount in numbers)

BID LOT NO. 2 – HVAC & ELECTRICAL WORK:
The Bidder agrees to construct this portion of the Work for the following lump sum price:

_____Dollars
(bid amount in words)

$ _____
(bid amount in numbers)

BID LOT NO. 3 – REROOFING WORK:
The Bidder agrees to construct this portion of the Work for the following lump sum price:

_____Dollars
(bid amount in words)

$ _____
(bid amount in numbers)

BID LOT NO. 4 – RESTROOMS RENOVATION WORK:
The Bidder agrees to construct this portion of the Work for the following lump sum price:

_____Dollars
(bid amount in words)

$ _____
(bid amount in numbers)

BID LOT NO. 5 – BUILDING EXTERIOR IMPROVEMENTS:
The Bidder agrees to construct this portion of the Work for the following lump sum price:

_____Dollars
(bid amount in words)

$ _____
(bid amount in numbers)

ADDITIVE ALTERNATE NO. 1, BID LOT NO. 5 – ALUMINUM STOREFRONTS
The Bidder agrees to construct this portion of the Work for the following lump sum price:

_____Dollars
(Alternate bid amount in words)

$ _____
(Alternate bid amount in numbers)

BID LOT NO. 6 – BUILDING INTERIOR IMPROVEMENTS:
The Bidder agrees to construct this portion of the Work for the following lump sum price:

_____Dollars
(bid amount in words)

$ _____
(bid amount in numbers)

The required Bid Security, Campaign Contribution Disclosure Form, Application for Preference, Listing of Subcontractors, Qualification Statement, Corporate Resolution (if applicable), and other required forms are completed and enclosed with the Bid Form.

SUBMITTED BY: _____*(Firm Name)*

PRINTED NAME: _____*(Authorized Representative)*

SIGNATURE: _____*(Authorized Representative)*

TITLE: _____*(Authorized Representative)*

ADDRESS OF FIRM: _____

_____

TELEPHONE NUMBER: _____

NEW MEXICO CONTRACTOR'S LICENSE NUMBER: _____

LICENSE CLASSIFICATION: _____

LICENSE EXPIRATION DATE: _____

NEW MEXICO DEPARTMENT OF WORKFORCE SOLUTIONS
REGISTRATION NUMBER: _____

END OF SECTION 00 4113 - BID FORM: PRICES

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00 4113.13 – FEDERAL BIDDING FORMS AND CONTRACT PROVISIONS

PART 1 GENERAL

1.1 Pages BF-1 through BF-23: Federal bid form required to be submitted with the bid.

1.2 Pages DBE-1 through DBE-8: Disadvantaged Business Enterprise contract provisions and forms applicable to DBE participation.

1.3 Page NTC-1: Notice to Contractors and Subcontractors regarding "PUBLIC WORKS CONTRACTS--REGISTRATION OF CONTRACTORS AND SUBCONTRACTORS."

1.4 Pages SUB-1 and FCP-2: Subcontractors Fair Practices Act and Prompt Payment Requirements.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 00 4113.13 – FEDERAL BID FORMS AND CONTRACT PROVISIONS

[FEDERAL BIDDING FORMS AND CONTRACT PROVISIONS FOLLOW]

THIS PAGE INTENTIONALLY LEFT BLANK

ADVERTISEMENT FOR BIDS

The following federal contract provisions apply to this contract and are incorporated by reference, the complete language and applicability are contained in the bid documents:

Provisions/Clauses	Dollar Threshold	Construction
Access to Records and Reports	$0	REQD
Affirmative Action Requirement	$10,000	REQD
Breach of Contract	$150,000	REQD
Buy American Preferences	$0	REQD
(1) Buy American Statement	$0	REQD
(2) BA – Total Facility	$0	REQD
(3) B.A. – Manufactured Product	$0	REQD
Civil Rights – General	$0	REQD
Civil Rights - Title VI Assurances	$0	REQD
(1) Notice - Solicitation	$0	REQD
(2) Clause - Contracts	$0	REQD
(6) List – Pertinent Authorities	$0	REQD
Clean Air/Water Pollution Control	$150,000	REQD
Contract Work Hours and Safety Standards	$100,000	REQD
Copeland Anti-Kickback	$2,000	REQD
Davis Bacon Requirements	$2,000	REQD
Debarment and Suspension	$25,000	REQD
Disadvantaged Business Enterprise	$0	REQD
Distracted Driving	$3,500	REQD
Energy Conservation Requirements	$0	REQD
Equal Employment Opportunity	$10,000	REQD
(1) EEO Contract Clause	$10,000	REQD
(2) EEO Specification	$10,000	REQD
Federal Fair Labor Standards Act	$0	REQD
Foreign Trade Restriction	$0	REQD
Lobbying Federal Employees	$100,000	REQD
Occupational Safety and Health Act	$0	REQD
Prohibition of Segregated Facilities	$10,000	REQD
Recovered Materials	$10,000	REQD
Rights to Inventions	$0	Limited
Seismic Safety	$0	Limited
Tax Delinquency and Felony Conviction	$0	REQD
Termination of Contract	$10,000	REQD
Veteran’s Preference	$0	REQD

INSTRUCTIONS TO BIDDERS

FEDERAL CONTRACT PROVISIONS
The following Federal contract provisions are incorporated by reference, the complete language is contained in the bid documents:

Provisions/Clauses	Dollar Threshold	Construction
Access to Records and Reports	$0	REQD
Affirmative Action Requirement	$10,000	REQD
Breach of Contract	$150,000	REQD
Buy American Preferences	$0	REQD
(1) Buy American Statement	$0	REQD
(2) BA – Total Facility	$0	REQD
(3) B.A. – Manufactured Product	$0	REQD
Civil Rights – General	$0	REQD
Civil Rights - Title VI Assurances	$0	REQD
(1) Notice - Solicitation	$0	REQD
(2) Clause - Contracts	$0	REQD
(6) List – Pertinent Authorities	$0	REQD
Clean Air/Water Pollution Control	$150,000	REQD
Contract Work Hours and Safety Standards	$100,000	REQD
Copeland Anti-Kickback	$2,000	REQD
Davis Bacon Requirements	$2,000	REQD
Debarment and Suspension	$25,000	REQD
Disadvantaged Business Enterprise	$0	REQD
Distracted Driving	$3,500	REQD
Energy Conservation Requirements	$0	REQD
Equal Employment Opportunity	$10,000	REQD
(1) EEO Contract Clause	$10,000	REQD
(2) EEO Specification	$10,000	REQD
Federal Fair Labor Standards Act	$0	REQD
Foreign Trade Restriction	$0	REQD
Lobbying Federal Employees	$100,000	REQD
Occupational Safety and Health Act	$0	REQD
Prohibition of Segregated Facilities	$10,000	REQD
Recovered Materials	$10,000	REQD
Rights to Inventions	$0	Limited
Seismic Safety	$0	Limited
Tax Delinquency and Felony Conviction	$0	REQD
Termination of Contract	$10,000	REQD
Veteran's Preference	$0	REQD

BID FORMS

Contractor Name: _____

Grant County, New Mexico
Grant County Airport Improvements – 2019
Grant County Terminal Renovation
Grant County, New Mexico
AIP Project No. 3-35-0039-021-2019
NMDOT – Aviation Division Grant No. SVC-19-03
Grant County Bid No. B-20-02
v1

BID FORMS

Contractor Name: _____

Pages BF-1 through BF-24 contain all the forms required to be submitted with the bid:

SUBCONTRACTOR LISTING

If no subcontractors are to be used, list NONE

The dollar value for listing subcontractors under the New Mexico Subcontractor's Fair Practice Act is $5,000.00.

List all DBE subcontractors. Only NMDOT Certified DBE's are considered DBE's under this contract.

Work Category/ Includes Services	Sub Contractor Name	Check If: New Mexico Subcontractors Fair Practices Act Subcontractor	Indicate:DBE/NON-DBE

CERTIFICATION OF BIDDER REGARDING REGISTRATION WITH THE LABOR ENFORCEMENT FUND
(13-4-13.1 NMSA 1978)

BIDDER'S NAME _____

ADDRESS _____

Reference: Public Works Contracts - Registration of Contractors and Subcontractors

Prime Contractor (required for bids of greater than $60,000)
NEW MEXICO DEPARTMENT OF WORKFORCE SOLUTIONS
CONTRACTOR REGISTRATION NO. _____ Expiration date _____

The bidder certifies that they and all proposed subcontractors with an estimated subcontract value of more than $60,000, hold valid registration with the Labor Relations Division of the New Mexico Department of Workforce Solutions (https://www.dws.state.nm.us/pwaa/LRDEmployer/Core/Login.ASPX) Further, the bidder certifies that all registrations will remain valid until the date of the bid opening as published in the Advertisement to Bid or as amended in any Addendum to these documents.

Subcontractor Listing with Contractor Registration Information

Subcontractor Name	Contractor Registration Number	Expiration Date	Estimated Sub-Contract Value

Use additional sheets as needed.

Certification - The information above is true and complete to the best of my knowledge and belief.

_____
Name and Title of Signer (Please Type)

_____ _____
Signature Date

NOTE: The penalty for making false statement in offers is prescribed in 18 U.S.C. 1001.

Grant County, New Mexico
Grant County Airport Improvements – 2019
Grant County Terminal Renovation
Grant County, New Mexico
AIP Project No. 3-35-0039-021-2019
NMDOT – Aviation Division Grant No. SVC-19-03
Grant County Bid No. B-20-02
v1

Prime Contractor Name: _____

SUBCONTRACTOR INFORMATION FORM

Copy and complete for each listed subcontractor

Subcontractor Name:
_____
Address/Place of business:
_____
County:
_____
Telephone:
_____
Business e-mail address:
_____
Work Category:
_____
License Number:
_____
Federal Employee Identification Number: _____
DUNS: _____
North American Industry Classification System (NAICS) code(s):
_____
DBE/Non-DBE: Yes / No (if yes - provide NMDOT DBE Certificate number and expiration date)
Small Business: Yes / No
Description of the work to be performed/service to be provided:
_____
_____
_____
_____

Age of Firm: _____
Annual Gross Receipts (check category):

Less than $500,000	
$500,000 to $1 million	
$1 million to $2 million	
$2 million and greater	

Approximate Value of Subcontract:_____

Notes on the Subcontractor Information Form:

- Complete a separate form for each subcontractor (no dollar limit) and submit with the bid.
- Under the New Mexico Subcontractors Fair Practices Act, a subcontractor performs work or labor or renders a service in or about the construction project.
- Under the DBE program, a subcontractor includes subcontractors and any suppliers of materials with whom the contractor has direct contact.

Grant County, New Mexico
Grant County Airport Improvements – 2019
Grant County Terminal Renovation
Grant County, New Mexico
AIP Project No. 3-35-0039-021-2019
NMDOT – Aviation Division Grant No. SVC-19-03
Grant County Bid No. B-20-02
v1

Reference: Disadvantaged Business Enterprise, Federal Contract Provisions A.12.3.2

Prime Contractor name: _____

BIDDER'S LIST OF QUOTES FOR THE DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

In accordance with 49 CFR Part 26, the County will establish a DBE goal using a Bidders List. The Bidders List will be a compilation of all quotes received by the Contractor during the advertising period. The Bidders List will be used to determine the relative availability of DBE's.

At the time the bid is submitted to the County, the Contractor shall list, on Form BL-DBE, the quotes received for the project, using additional sheets as necessary. The listing shall include EACH quoter's name, business location, telephone number, and whether the quoter is a New Mexico Department of Transportation certified DBE. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL RENDER A BID NON- RESPONSIVE AND THE BID SHALL BE REJECTED.

The term "quoter" shall include subcontractors and suppliers of materials with whom the Contractor has direct contact.

Providing the listing of quoters in compliance with the Provisions, shall not be a substitute for the requirements of the Subcontractors Fair Practices Act, Chapter 18, Laws of 1988, NMSA 1978, Sections 13-4-31 through 13-4-43.

BIDDER: _____
ADDRESS: _____
TELEPHONE No.: _____FAX No.: _____
E-MAIL ADDRESS: _____

LISTING OF QUOTERS (use additional pages as needed)

Name	Address	Telephone	DBE / Non-DBE

Name	Address	Telephone	DBE / Non-DBE

DISADVANTAGED BUSINESS ENTERPRISE (DBE) UTILIZATION

Reference: Disadvantaged Business Enterprise Contract Provisions

The undersigned bidder/offeror has satisfied the requirements of the bid specification in the following manner (please check the appropriate space):

_____ The bidder/offeror is committed to a minimum of 4.0% DBE utilization on this contract for the bid bids utilizing the DBE firms listed in this bid proposal.

_____ The bidder/offeror (if unable to meet the DBE goal of 4.0%) is committed to a minimum of ____% DBE utilization on this contract utilizing the DBE firms listed in this bid proposal and submits with this form, documentation demonstrating good faith efforts.

_____ The bidder/offeror (if unable to meet the DBE goal of 4.0% for the bid lots) is committed to a minimum of the percentages below for DBE utilization on this contract utilizing the DBE firms listed in this bid proposal and submits with this form, documentation demonstrating good faith efforts.

Bid Lot 1 ____ %
Bid Lot 2 ____ %
Bid Lot 3 ____ %
Bid Lot 4 ____ %
Bid Lot 5 ____ %
Bid Lot 6 ____ %

Name of bidder/offeror's firm: _____

Bidder's Contractor License No(s).____

By: _____ _____
(Signature) Title

Note: only DBE's certified by the NM Department of Transportation are qualified DBE's under this contract.

DBE UTILIZATION SUMMARY

	Contract Amount	Factor	DBE Amount	Contract Percentage
DBE Prime Contractor	$_____	x 1.0	$_____	_____%
DBE Subcontractor	$_____	x 1.0	$_____	_____%
DBE Supplier	$_____	x 0.60	$_____	_____%
DBE Manufacturer	$_____	x 1.0	$_____	_____%
Total Amount DBE	$_____		$_____	_____%
DBE Goal: 4.0%			$_____	_____%

DISADVANTAGED BUSINESS ENTERPRISE LETTER OF INTENT

Copy and complete for each DBE Subcontractor

Grant County-Silver City
Grant County Terminal Renovation

Name of Bidder: _____

Address: _____

City: _____ State: _____ Zip: _____

Name of DBE firm: _____

Address: _____

City: _____State: _____ Zip: _____

Telephone: _____

NMDOT DBE Certificate Number: _____ Expiration date: _____

Description of work to be performed by DBE firm:

- -

- -

- -

The bidder/offeror is committed to utilizing the above-named DBE firm for the work described above. The estimated dollar value of this work is:

Bid Lot No. 1 (Base Bid): $_____
Bid Lot No. 2: $_____
Bid Lot No. 3: $_____
Bid Lot No. 4: $_____
Bid Lot No. 5: $_____
Bid Lot No. 5 Additive Alternate: $_____
Bid Lot No. 6: $_____

Affirmation – DBE Subcontractor Signs this:

I _____ , representing the DBE firm affirms that we will perform the portion of the contract for the estimated dollar value as stated above.

By _____
(Signature) (Title)

If the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

(Submit a copy of this page with the Bid for <u>each</u> DBE subcontractor.)

EQUAL OPPORTUNITY CLAUSE; COMPLIANCE REPORTS

Previous Contracts. 41 CFR Section 60 1.7(b) requires each bidder or prospective prime contractor and proposed subcontractor, where appropriate, to state in the bid or at the outset of negotiations for the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and if so, whether it has filed with the Joint Reporting Committee, the Director, an agency, or the former President's Committee on Equal Employment Opportunity all reports due under the applicable filing requirements. In any case in which a bidder or prospective prime contractor or proposed subcontractor which participated in a previous contract subject to Executive Order 10925, 11114 or 11246 has not filed a report due under the applicable filing documents, no contract or subcontract shall be awarded unless such contractor submits a report covering the delinquent period or such other period specified by the FAA or the Director, OFCCP.

Bid or Proposal Form. To effectuate the foregoing requirements, the sponsor is required to include in the bid or proposal form a statement substantially as follows:

The bidder (proposer) shall complete the following statement by checking the appropriate space.

The bidder (proposer) has _____ has not _____ participated in a previous contract subject to the equal opportunity clause prescribed by Executive Order 10925, or Executive Order 11114, or Executive Order 11246.

The bidder (proposer) has _____ has not _____ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.

If the bidder (proposer) has participated in a previous contract subject to the equal opportunity clause and has not submitted compliance reports due under applicable filing requirements, the Bidder (Proposer) shall submit a compliance report on Standard Form 100, "Employee Information Report EEO1" prior to the award of contract.

Standard Form 100 is normally furnished contractors annually, based on a mailing list currently maintained by the Joint Reporting Committee. In the event a contractor has not received the form, they may obtain it by writing to the Joint Reporting Committee, 1800 G Street, Washington, DC 20506.

Name of Contractor: _____

Grant County, New Mexico
Grant County Airport Improvements – 2019
Grant County Terminal Renovation
Grant County, New Mexico
AIP Project No. 3-35-0039-021-2019
NMDOT – Aviation Division Grant No. SVC-19-03
Grant County Bid No. B-20-02
v1

BUY AMERICAN CERTIFICATION

Reference: Federal Contract Provisions, Buy American Preference (A4.3.1)

CERTIFICATE OF BUY AMERICAN COMPLIANCE FOR TOTAL FACILITY (A4.3.2)

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101 by selecting one of the following certification statements. These statements are mutually exclusive.

Bidder must select one or the other (i.e. not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:

a) Only installing steel and manufactured products produced in the United States; or
b) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
- To faithfully comply with providing U.S. domestic products.
- To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

a) To the submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that supports the type of waiver being requested.

b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the "facility". The required documentation for a Type 3 waiver is:

a) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
c) Percentage of non-domestic component and subcomponent cost as compared to total "facility" component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver – Total cost of project using U.S. domestic source product exceeds the total project cost using non-domestic product by 25 percent. The required documentation for a Type 4 of waiver is:

a) Detailed cost information for total project using U.S. domestic product
b) Detailed cost information for total project using non-domestic product

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date	Signature
Company Name	Title

Federal Contract Provisions 12/12/2017

CERTIFICATIONS BY SUBMISSION OF AN OFFER

The complete language of the contract clauses requiring these certifications is contained in the Federal Contract Provision section.

CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT (A11.3.1)

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

Federal Contract Provisions 12/12/2017

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT (A11.3.2)

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov.
2. Collecting a certification statement similar to the Certification of Offerer /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

Federal Contract Provisions 12/12/2017

CERTIFICATION REGARDING LOBBYING (A18.3)

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee

of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Federal Contract Provisions 12/12/2017

CERTIFICATION OF OFFERER/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS (A24.3)

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

1) The applicant represents that it is ( ) is not ( ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2) The applicant represents that it is ( ) is not ( ) is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government’s interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency’s SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18
U.S.C. § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Federal Contract Provisions 12/12/2017

TRADE RESTRICTION CERTIFICATION (A26.3)

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);
2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and
3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC Section 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list or

3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

Federal Contract Provisions 12/12/2017

DAVIS-BACON REQUIREMENTS (A10.3) CONTRACTS EXCEEDING $2,000

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

Federal Contract Provisions 12/12/2017

_____.

Bidder Name/Name and Title of Signer (Please Type)

_____ _____

Signature Date

NON-COLLUSION AFFIDAVIT

STATE OF _____)
ss:
COUNTY OF _____)

_____, being first duly sworn, deposes and says:

That he/she is _____ of _____
(title) (Insert name of bidder)

who submits herewith to the Grant County, New Mexico, a proposal:

That all statement of fact in such proposal are true;

That said proposal was not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization or corporation;

That said bidder has not, directly or indirectly by agreement, communication or conference with anyone attempted to induce action prejudicial to the interest of the Grant County, New Mexico, or of any bidder of anyone else interested in the proposed contract; and further,

That prior to the public opening and reading of proposal, said bidder:

1. Did not directly or indirectly, induce or solicit anyone else to submit a false or sham proposal;

2. Did not directly or indirectly collude, conspire, connive or agree with anyone else that said bidder or anyone else would submit a false or sham proposal, or that anyone should refrain from bidding or withdraw their proposals;

3. Did not in any manner, directly or indirectly, seek by agreement, communication or conference with anyone to raise or fix the proposal price of said bidder or of anyone else, or to raise or fix any overhead, profit or cost element of their proposal price, or of that of anyone else;

4. Did not, directly or indirectly, submit their proposed price or any breakdown thereof, or the contests thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association organization, bid depository or to any member or agent thereof, or to any individual of group of individuals, except that Grant County, New Mexico, or to any person or persons who have a partnership or other financial interests with said bidder in their business.

By _____

SUBSCRIBED and sworn to before me this __day of _____, 20____.

_____
Notary Public

My Commission Expires: _____

CAMPAIGN CONTRIBUTION DISCLOSURE FORM

Pursuant to the Procurement Code, Sections 13-1-28, et seq., NMSA 1978 and NMSA 1978, § 13-1-191.1 (2006), as amended by Laws of 2007, Chapter 234, any prospective contractor seeking to enter into a contract with any state agency or local public body **for professional services, a design and build project delivery system, or the design and installation of measures the primary purpose of which is to conserve natural resources** must file this form with that state agency or local public body. This form must be filed even if the contract qualifies as a small purchase or a sole source contract. The prospective contractor must disclose whether they, a family member or a representative of the prospective contractor has made a campaign contribution to an applicable public official of the state or a local public body during the two years prior to the date on which the contractor submits a proposal or, in the case of a sole source or small purchase contract, the two years prior to the date the contractor signs the contract, if the aggregate total of contributions given by the prospective contractor, a family member or a representative of the prospective contractor to the public official exceeds two hundred and fifty dollars ($250) over the two year period.

Furthermore, the state agency or local public body may cancel a solicitation or proposed award for a proposed contract pursuant to Section 13-1-181 NMSA 1978 or a contract that is executed may be ratified or terminated pursuant to Section 13-1-182 NMSA 1978 of the Procurement Code if: 1) a prospective contractor, a family member of the prospective contractor, or a representative of the prospective contractor gives a campaign contribution or other thing of value to an applicable public official or the applicable public official's employees during the pendency of the procurement process or 2) a prospective contractor fails to submit a fully completed disclosure statement pursuant to the law.

The state agency or local public body that procures the services or items of tangible personal property shall indicate on the form the name or names of every applicable public official, if any, for which disclosure is required by a prospective contractor.

THIS FORM MUST BE INCLUDED IN THE REQUEST FOR PROPOSALS AND MUST BE FILED BY ANY PROSPECTIVE CONTRACTOR WHETHER OR NOT THEY, THEIR FAMILY MEMBER, OR THEIR REPRESENTATIVE HAS MADE ANY CONTRIBUTIONS SUBJECT TO DISCLOSURE.

The following definitions apply:

"**Applicable public official**" means a person elected to an office or a person appointed to complete a term of an elected office, who has the authority to award or influence the award of the contract for which the prospective contractor is submitting a competitive sealed proposal or who has the authority to negotiate a sole source or small purchase contract that may be awarded without submission of a sealed competitive proposal.

"**Campaign Contribution**" means a gift, subscription, loan, advance or deposit of money or other thing of value, including the estimated value of an in-kind contribution, that is made to or received by an applicable public official or any person authorized to raise, collect or expend contributions on that official's behalf for the purpose of electing the official to statewide or local office. "Campaign Contribution" includes the payment of a debt incurred in an election campaign, but does not include the value of services provided without compensation or unreimbursed travel or other personal expenses of individuals who volunteer a portion or all of their time on behalf of a candidate or political committee, nor does it include the administrative or solicitation expenses of a political committee that are paid by an organization that sponsors the committee.

"**Family member**" means spouse, father, mother, child, father-in-law, mother-in-law, daughter-in-law or son-in-law of (a) a prospective contractor, if the prospective contractor is a natural person; or (b) an owner of a prospective contractor.

"**Pendency of the procurement process**" means the time period commencing with the public notice of the request for proposals and ending with the award of the contract or the cancellation of the request for proposals.

"**Prospective contractor**" means a person or business that is subject to the competitive sealed proposal process set forth in the Procurement Code or is not required to submit a competitive sealed proposal because that person or business qualifies for a sole source or a small purchase contract.

"**Representative of a prospective contractor**" means an officer or director of a corporation, a member or manager of a limited liability corporation, a partner of a partnership or a trustee of a trust of the prospective contractor.

Name(s) of Applicable Public Official(s) if any:

Board of Grant County Commissioners:

Chris M. Ponce, Javier Salas, Alicia Edwards Gerald W. Billings, Jr., Harry Browne

DISCLOSURE OF CONTRIBUTIONS BY PROSPECTIVE CONTRACTOR:

Contribution Made To: _____

Contribution Made By: _____

Name and Relationship
to Prospective Contractor: _____

Date Contribution(s) Made: _____

_____

Amount(s) of Contribution(s) _____

_____

Nature of Contribution(s) _____

_____

Purpose of Contribution(s) _____

_____

(Attach extra pages if necessary)

_____ _____

Signature Date

_____

Title (position)

--OR—

NO CONTRIBUTIONS IN THE AGGREGATE TOTAL OVER TWO HUNDRED FIFTY DOLLARS ($250) WERE MADE to an applicable public official by me, a family member or representative.

_____ _____

Signature Date

CERTIFICATION REGARDING
DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
(b) Have not within a three year period preceding this proposal been convicted of all had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State Antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and
(d) Have not within a three-year period preceding this application/proposal had one or more public transaction (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be ground for rejection of this proposal or termination of the award. Under 18USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____
Typed Name & Title of Authorized Representative

_____
Signature of Authorized Representative

_____
Date

DISADVANTAGED BUSINESS ENTERPRISE CONTRACT PROVISIONS

PART A: POLICY

It is the policy of the Department of Transportation (DOT) that disadvantaged business enterprises as defined in 49 CFR Part 26 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this agreement.

The Grant County has a DBE program pursuant to 49 CFR Part 26; the following are elements of this program.

The Grant County will never exclude any person from participation in, deny any person the benefits of, or otherwise discriminate against anyone in connection with the award and performance of any contract covered by 49 CFR Part 26 on the basis of race, color, sex, or national origin.

In administering its DBE program, the Grant County will not, directly or through contractual or other arrangement, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the objectives of the DBE program with respect to individuals of a particular race, color, sex, or national origin.

The Grant County shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT assisted contract or in the administration of its DBE Program or the requirements of 49 CFR Part 26. The Grant County shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of DOT assisted contracts. The Grant County DBE Program, as required by 49 CFR Part 26 and as approved by DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as violation of this agreement. Upon notification to the Grant County of its failure to carry out its approved program the Department of Transportation may impose sanctions as provided for under 49 CFR Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 et seq.).

PART B: REQUIRED CONTRACT AND SUBCONTRACT LANGUAGE

DBE OBLIGATION. The contractor agrees to ensure that disadvantaged business enterprises as defined in 49 CFR Part 26, have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds provided under this agreement. In this regard all contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 26, to ensure that disadvantaged business enterprises have the maximum opportunity to compete for and perform contracts. Contractors shall not discriminate on the basis of race, color, national origin or sex in the award and performance of DOT - assisted contracts.

CONTRACT ASSURANCE

The contractor, sub-recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted

contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

PAYMENT AND RETAINAGE

Pursuant to 57-28-5 NMSA 1978, the prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than seven (7) days from the receipt of each payment the prime contractor receives from the Grant County. The prime contractor agrees further to return retainage payments to each subcontractor within seven (7) days after subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Grant County. This clause applies to both DBE and non-DBE subcontractors.

PART C: DBE PROGRAM HIGHLIGHTS

MONITORING AND ENFORCEMENT MECHANISMS

The Grant County, contractor, subcontractor, or suppliers will bring to the attention of the DOT any false, fraudulent, or dishonest conduct in connection with the program, so that the DOT can take the steps (e.g., referral to the Department of Justice for criminal prosecution, referral to the DOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules) provided in 26.107. The Grant County will also consider similar action under our own legal authorities, including responsibility determinations in future contracts.

If the prime contractor is found to be in violation or fails to abide by the prompt payment mechanisms, the Grant County shall notify the non-compliant party in writing. A compliance conference to discuss the area(s) of non-compliance will be held. In the event that the non-compliant party fails or refuses to perform in compliance with this program, a "Notice of Non-Compliance" will be transmitted. If the non-compliant party corrects the deficiencies, the "Notice of Non-Compliance" will be rescinded, and the party will be notified as to compliance. If the deficiencies are not corrected, the Grant County will initiate administrative action against the non-compliant party, which may include but not be limited to:

Termination of the Contract.

For construction, withholding an appropriate percentage of partial payments pursuant to USDOT FAA AC 150/5370-10A, Standards for Specifying Construction of Airports, or as otherwise allowed by state statue.

Initiation of appropriate suspension, debarment or de-certification proceedings PURSUANT TO 49 CFR Part 26.

Referral of any unlawful actions to the appropriate enforcement agencies pursuant to 49 CFR Part 26.

Prosecution pursuant to 18 USC 1001.

Other action as appropriate, at the discretion of the Grant County.

GOOD FAITH EFFORTS

Information to be submitted

The Grant County treats bidder/offeror compliance with good faith effort requirements as a matter of responsibility.

Each solicitation for which a contract goal has been established will require each bidders/offerors to submit the following information with their bid:

The names and addresses of DBE firms that will participate in the contract;
A description of the work that each DBE will perform;
The dollar amount of the participation for each DBE firm participation;
If the contract goal is not met, evidence of good faith efforts.

The apparent successful bidder will provide the following to the consulting engineer, within seven (7) days of the notice of award:

Written and signed documentation of commitment to use a DBE subcontractor whose participation it submits to meet a contract goal;

Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment;

DEMONSTRATION OF GOOD FAITH EFFORTS

The obligation of the bidder/offeror is to make good faith efforts. The bidder/offeror can demonstrate that it has done so either by meeting the contract goal or documenting good faith efforts.

Examples of good faith efforts are found in Appendix A to 49 CFR Part 26 and repeated below: IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D.

(1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those

portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

<u>The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract.</u>

The Airport Manager along with the architect are responsible for determining whether a bidder/offeror who has not met the contract goal has documented sufficient good faith efforts to be regarded as responsible.

The Grant County will ensure that all information is complete and accurate and adequately documents the bidder/offeror’s good faith efforts before the Grant County commit to the performance of the contract by the bidder/offeror. The forms entitled “Letter of Intent” will be used to collect information necessary to determine whether the bidder/offeror has satisfied these requirements.

<u>ADMINISTRATIVE RECONSIDERATION</u>

Within 5 business days of being informed by the Grant County that it is not responsible because it has not documented sufficient good faith efforts, a bidder/offeror may request administrative reconsideration. Bidder/offerors should make this request in writing to the following reconsideration official: Charlene Webb, County Manager The reconsideration official will not have played any role in the original determination that the bidder/offeror did not make document and sufficient good faith efforts.

As part of this reconsideration, the bidder/offeror will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so. The bidder/offeror will have the opportunity to meet in person with our reconsideration official to discuss the issue of whether it met the goal, or made adequate good faith efforts to do so. The Grant County will send the bidder/offeror a written decision on reconsideration, explaining the basis for finding that bidder did or did not meet the goal or make adequate good faith efforts to do so. The result of the reconsideration process is not administratively appealable to the DOT.

GOOD FAITH EFFORTS WHEN A DBE IS REPLACED ON A CONTRACT

The Grant County will require a contractor to make good faith efforts to replace a DBE that is terminated or has otherwise failed to complete its work on a contract with another certified DBE, to the extent needed to meet the contract goal. The Grant County will require the prime contractor to notify the Grant County immediately of the DBE's inability, or unwillingness, to perform and provide reasonable documentation.

In this situation, the Grant County will require the prime contractor to obtain our prior approval of the substitute DBE, and to provide copies of new or amended subcontracts, or documentation of good faith efforts. If the contractor fails or refuses to comply in the time specified, the contracting office will issue an order stopping all or part of payment/work until satisfactory action has been taken. If the contractor still fails to comply, the contracting officer may issue a termination for default proceedings. Additionally, the provisions of the New Mexico Subcontractors Fair Practices Act (13-4-31 to 13-4-42 NMSA 1978) are to be used when replacing a subcontractor.

COMPLIANCE. All bidders, potential contractors or subcontractors for this DOT-assisted contract are hereby notified that failure to carry out the DOT policy and the DBE obligation, as set forth above, shall constitute a breach of contract which may result in termination of the contract or such other remedy as deemed appropriate by the owner.

The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the County to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit bids/proposals. Award of this contract will be conditioned upon satisfying the requirements of this bid specification. These requirements apply to all bidders/offerors, including those who qualify as a DBE. A DBE contract goal of 4.0 percent has been established for this contract. The bidder/offeror shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26 (attachment 1), to meet the contract goal for DBE participation in the performance of this contract.

The bidder/offeror will be required to submit the following information: (1) the names and addresses of DBE firms that will participate in the contract; (2) a description of the work that each DBE firm will perform; (3) the dollar amount of the participation of each DBE firm participating; (4) Written documentation of the bidder/offeror's commitment to use a DBE

subcontractor whose participation it submits to meet the contract goal; (5) Written confirmation from the DBE that it is participating in the contract as provided in the commitment made under (4); and (6) if the contract goal is not met, evidence of good faith efforts.

COUNTING DBE PARTICIPATION

The Grant County will count DBE participation toward overall and contract goals as provided in 49 CFR Part 26.55.

DBE's may include subcontractors and suppliers. However, suppliers who are not the manufacturer of the supplies may only be credited with 60% of the cost of the supplies.

The Grant County will not count participation of a DBE subcontract towards a contractor's final compliance with its DBE obligations on a contract until the amount being counted has actually been paid to the DBE.

The contractor will report their DBE participation monthly using the "Monthly Contractor DBE Participation Report Form".

MONITORING PAYMENTS TO DBEs

The prime contractor is to maintain records and documents of payments to DBEs for three years following the performance of the contract. These records will be made available for inspection upon request by any authorized representative of the Grant County or the DOT. This reporting requirement also extends to any certified DBE subcontractor.

The contractor will keep a running tally of actual payments to DBEs for work committed to them at the time of contract award and report this tally monthly on the "Monthly Contractor DBE Participation Report Form."

The Grant County and the DOT reserves the right to perform interim audits of contract payments to DBEs. The audit will review payments to DBE subcontractors to ensure that the actual dollar amount paid to DBE subcontractor's equals or exceeds the dollar amounts stated in the schedule of DBE participation.

UNLAWFUL DISCRIMINATION

It is unlawful for airport operators and their lessees, tenants, concessionaires and contractors to discriminate against any person because of race, color, national origin, sex, creed, or handicap in public services and employment opportunities. Allegations of discrimination should be promptly reported to the Grant County or:

Federal Aviation Administration
Office of Civil Rights, ACR-1
800 Independence Avenue, S.W.
Washington, D.C. 20591

PART D: DBE GOALS

It is further understood and agreed:

Notification is hereby given that DBE goals are established for this prime contract. The goal for firms owned and controlled by socially and economically disadvantaged individuals is 4.0 percent of the dollar value of this contract.

Each bidder will be required to submit a letter of intent, with the names and addresses for each of the DBE firms that will participate in the contract along with a description of the work to be performed by each named firm and the approximate dollar value for each contract (subcontract) on the subcontractor information form included in the bid package. Participation can be by DBE suppliers of materials or DBE subcontractors for portions of the construction or services. If the responses do not clearly show DBE participation will meet the goals above, the apparent successful bidder must provide documentation clearly demonstrating, to the satisfaction of the airport sponsor, that it made good faith efforts in attempting to do so and that meeting said goals is not reasonably possible. These letters of intent are to be submitted with the bid. A bid that fails to meet these requirements will be considered non-responsive.

Agreements between bidder/proposer and a DBE in which the DBE promises not to provide sub-contracting quotations to other bidders/proposers are prohibited. All bidders and proposers shall make a good faith effort to replace a DBE subcontractor that is unable to perform successfully with another DBE subcontractor.

The bidder shall establish and maintain records and submit regular reports, as required, which will identify and assess progress in achieving DBE subcontract goals and other DBE affirmative action efforts.

Submission of the DBE Utilization Form and a Letter of intent from each DBE proposed with the bid is required.

Submission of Good Faith Efforts must be included if the bidder is unable to meet the DBE Goal of 4.0%.

Note: Only DBE's certified by the New Mexico Department of Transportation are qualified DBE's under this contract.

Information on the New Mexico Department of Transportation DBE Program can be obtained from the NMDOT Construction - Civil Rights Bureau, Disadvantaged Business Enterprise Program (DBE),
http://www.dot.state.nm.us/en/OEOP.html

MONTHLY CONTRACTOR DBE PARTICIPATION REPORT FORM

Grant County-Silver City Airport
Grant County Terminal Renovation

To be completed by the Prime Contractor and submitted to the engineer on a monthly basis as of the end of the month. Forms must be submitted by the 10th of the month for the previous month.

Reporting Period:_____thru_____
Report Number:_____
FAA Project No.: 3-35-0039-021-2019 ,
NMDOT – Aviation Division Grant No.: SVC-19-03
Contractor:_____

Item Description	DBE Firm	DBE Certification Number	Amount Paid this Reporting Period*
		Total	

*Pursuant to 49 CFR Parts 23 and 26 section 26.55 E2 (i), if any firm listed above is a supplier, but not the manufacturer, the contractor may credit only 60% of the expenditure to the supplier.

SUMMARY OF DBE PARTICIPATION

Previous Amount Paid to DBE's	Amount Paid to DBE's this Period	Total Amount to DBE's to Date
Total Percentage of Original Contract Amount Paid to DBE's to Date		%

Original Contract Amount: $_____
Current Contract Amount: $_____
Current Amount Paid to Non-DBE Subs.: $_____
Total Number Non-DBE Subs:_____

Current DBE Percent (Original): _____%
Current Contract Amount (Current): _____%
Committed DBE Utilization: _____%

I certify that the above amounts have been paid to the

_____

DBE's and the summary of DBE participation are correct. Contractor
By:_____

Subscribed and sworn before me this _____ day of _____, 20___.

_____
Notary Public

My Commission Expires _____

NOTICE TO CONTRACTORS AND SUBCONTRACTORS

PUBLIC WORKS CONTRACTS--REGISTRATION OF CONTRACTORS AND SUBCONTRACTORS

As this contract is a Public Works Contract as defined by the Procurement Code (Sections 13-1-28 through 13-1-199 NMSA 1978), the provision of 13-4-13.1 requires the registration of all contractors and certain subcontractors on this project.

13-4-13.1. Public works contracts; registration of contractors and subcontractors.

A. Except as otherwise provided in this subsection, in order to submit a bid valued at more than sixty thousand dollars ($60,000) in order to respond to a request for proposals or to be considered for award of any portion of a public works project greater than sixty thousand dollars ($60,000) for a public works project that is subject to the Public Works Minimum Wage Act (13-4-10 to 13-4-17 NMSA 1978), the contractor, serving as a prime contractor or not, shall be registered with the division. Bidding documents issued or released by a state agency or political subdivision of the state shall include a clear notification that each contractor, prime contractor or subcontractor is required to be registered pursuant to this subsection. The provisions of this section do not apply to vocational classes in public schools or public post-secondary educational institutions.

B. The state or any political subdivision of the state shall not accept a bid on a public works project subject to the Public Works Minimum Wage Act from a prime contractor that does not provide proof of required registration for itself.

C. Contractors and subcontractors may register with the division on a form provided by the division and in accordance with workforce solutions department rules. The division shall charge a registration fee of four hundred dollars ($400) every two years. The division shall issue to the applicant a certificate of registration within fifteen days after receiving from the applicant the completed registration form and the registration fee.

D. No less than thirty days before the expiration of a registration certificate, the division shall mail or electronically transmit to a registrant's address as reflected in the files of the division a reminder of the approaching expiration date.

E. Registration fees collected by the division shall be deposited in the labor enforcement fund.

History: Laws 2004, ch. 89, § 1; 2005, ch. 98, § 2; 2009, ch. 206, § 5; 2011, ch. 94, § 1.

Submission of the Certification of Bidder regarding registration with the labor enforcement fund for the bidder and all subcontractors with contract values greater than $60,000 is required with the bid.

SUBCONTRACTORS

The provisions of the New Mexico Subcontractors Fair Practices Act (13-4-31 to 13-4-42 NMSA 1978) apply to this contract. Additionally, provisions of the Disadvantaged Business Enterprise (DBE) Program (49 CFR part 26) apply to this contract.

Subcontractors identified on the Subcontractor Listing form in this bid cannot be substituted without complying with the New Mexico Subcontractors Fair Practices Act. Under the New Mexico Subcontractors Fair Practices Act, a subcontractor performs work or labor or renders a service in or about the construction project. The dollar value for listing of subcontractors under the New Mexico Subcontractors Fair Practices Act is $5,000.00

All DBE subcontractors should be listed regardless of dollar value of their subcontract. Under the DBE program, a subcontractor includes subcontractors and any suppliers of materials with whom the contractor has direct contact.

The Subcontractor Information form will be completed for each subcontractor to be used under this contract.

PAYMENTS TO SUBCONTRACTORS

57-28-5 NMSA 1978 “Payments; Prompt Pay Required; Retainage states:

“C. All construction contracts shall provide that contractors and subcontractors make prompt payment to their subcontractors and suppliers for amounts owed for work performed on the construction project within seven days after receipt of payment from the owner, contractor or subcontractor. If the contractor or subcontractor fails to pay their subcontractor and suppliers by first-class mail or hand delivery within seven days of receipt of payment, the contractor or subcontractor shall pay interest to their subcontractors and suppliers beginning on the eighth day after payment was due, computed at one and one-half percent of the undisputed amount per month or fraction of a month until payment is issued. These payment provisions apply to all tiers of contractors, subcontractors and suppliers.”
“E. When making payments, an owner, contractor or subcontractor shall not retain, withhold, hold back or in any other manner not pay amounts owed for work performed.”

ADDITIONAL REQUIRED LANGUAGE IN SUBCONTRACTS

The “Federal Contract Provisions” section of this contract has additional language required in all subcontracts. For purposes of determining requirements for contract provisions, the term “contract” in the Federal Contract Provisions” includes subcontracts.

The owner:

Requires the contractor (including all subcontractors) to insert these contract provisions in each lower tier contracts (e.g. subcontract or sub-agreement);

Requires the contractor (or subcontractor) to incorporate the applicable requirements of these contract provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services;

Requires that the prime contractor be responsible for compliance with these contract provisions by any subcontractor, lower-tier subcontractor or service provider;

Submission of the Subcontractor Listing and a Subcontractor Information form for each subcontractor is required with the bid.

The contractor will provide copies of subcontracts, purchase orders, rental agreements and other agreements for supplies or services (at any tier) to the owner upon the owner's request.

FAA Prompt Payment Complaint Reporting Requirements

Public Law No. 115-254 requires prompt payment to subcontractors and timely return of retainage.

FAA Office of Civil Rights letter February 11, 2019 requires the sponsor (owner) to report to the FAA all instances where subcontractors complain of lack of prompt payment and/or timely release of retainage.

SECTION 00 4313 – BID BOND

PART 1 - GENERAL

1.1 SUMMARY

A. Acceptable form for bid bond is AIA Document A310-2010 Bid Bond.

B. A copy of this document may be reviewed at the office of the Architect: ASA Architects, 201 North Alameda, Las Cruces, New Mexico 88005.

C. Attach a completed and sealed original of the Bid Bond with supporting power of attorney, under the surety's corporate seal, for the agent/officer executing the bond.

END OF SECTION 00 4313 – BID BOND

[Sample "AIA Document A310-2010 Bid Bond" follows.]

THIS PAGE INTENTIONALLY LEFT BLANK

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

BOND AMOUNT:

PROJECT:
(Name, location or address, and Project number, if any)

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of

(Witness)	*(Contractor as Principal)* *(Seal)*
	(Title)
(Witness)	*(Surety)* *(Seal)*
	(Title)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

Init.
/

SECTION 00 4513 - QUALIFICATIONS STATEMENT

1.1 SUBMITTAL REQUIREMENT

This form shall be completed by Bidder and **submitted with Document 00 4113 Bid Form: Prices** to demonstrate the Contractor has experience and qualifications to carry out terms of Contract and successfully complete Work. Provide additional sheets as required.

A. NAME OF FIRM:_____

B. MAIN OFFICE ADDRESS:_____
_____

C. TELEPHONE & FAX NUMBERS:_____

D. NEW MEXICO CONTRACTOR'S LICENSE NUMBER:_____

E. LICENSE CLASSIFICATION:_____

F. LICENSE EXPIRATION DATE:_____

G. NMDWS CONTRACTOR REGISTRATION NUMBER:_____

H. DATE FIRM ORGANIZED:_____

I. YEARS ENGAGED IN CONTRACTING UNDER PRESENT NAME:_____

J. GENERAL CHARACTER OF WORK PERFORMED BY FIRM:_____
_____
_____

K. SIMILAR PROJECTS COMPLETED BY FIRM IN PAST 5 YEARS
List client, location, construction amount, and date completed:
_____
_____
_____

L. PREVIOUS CLIENTS DURING PAST 5 YEARS
Provide name of contact and telephone number:
_____
_____
_____

M. CURRENT PROJECTS UNDER CONTRACT
Include construction amount and estimated completion dates:
_____
_____
_____

N. NAME OF SUPERINTENDENT TO OVERSEE CONSTRUCTION AT SITE
Attach resume of proposed superintendent. Indicate education, training, certifications achieved, previous construction experience and list projects for which individual has served as construction superintendent. Include number of years individual has been employed by Contractor and list positions and areas of responsibility:
_____

END OF SECTION 00 4513 - QUALIFICATIONS STATEMENT

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00 5213 - AGREEMENT FORM

PART 1 – GENERAL

1.1 SUMMARY

A. Contract form to be used for this Project is AIA Document A101-2017 “Standard Form of Agreement between Owner and Contractor where the Basis of Payment is a Stipulated Sum”.

B. A copy of this document may be reviewed at the office of the Architect: ASA Architects, 201 North Alameda, Las Cruces, New Mexico 88005.

END OF SECTION 00 5213 - AGREEMENT FORM

[SAMPLE AIA DOCUMENT A101-2017 FOLLOWS]

THIS PAGE INTENTIONALLY LEFT BLANK

AIA® Document A101™ – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101™–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement.

AIA Document A201™–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☐ Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

☐ Not later than ( ) calendar days from the date of commencement of the Work.

☐ By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

_____ % _____

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution
For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2017

☐ Litigation in a court of competent jurisdiction

☐ Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION
§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS
§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

☐ AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

☐ The Sustainability Plan:

Title	Date	Pages

☐ Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

Init.
/

SECTION 00 6113.13 – PERFORMANCE BOND FORM

PART 1 - GENERAL

1.1 SUMMARY

A. The Contractor shall provide the Owner with a performance bond for one hundred percent (100%) of the contract sum.

1.2 RELATED SECTIONS

A. SECTION 00 2113 - INSTRUCTIONS TO BIDDERS

B. SECTION 00 7300 - SUPPLEMENTARY CONDITIONS

C. SECTION 00 7310 - SPECIAL CONDITIONS

D. SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS

1.3 DOCUMENTS

A. Sample “AIA Document A312-2010 Performance Bond” follows.

B. Sample document referenced above shall be edited to meet the contractual requirements of Grant County and those of the funding agency.

C. A copy of this document may be reviewed at the office of the Architect: ASA Architects, 201 North Alameda, Las Cruces, New Mexico 88005.

D. Attach a completed and sealed original of the Performance Bond with supporting power of attorney, under the surety’s corporate seal, for the agent/officer executing the bond.

END OF SECTION 00 6113.13 – PERFORMANCE BOND FORM

[Sample “AIA Document A312-2010 Performance Bond” follows]

THIS PAGE INTENTIONALLY LEFT BLANK

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		SURETY	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

SECTION 00 6113.16 – PAYMENT BOND FORM

PART 1 - GENERAL

1.1 SUMMARY

A. The Contractor shall provide the Owner with a materials, equipment, and labor payment bond for one hundred percent (100%) of the contract sum.

1.2 RELATED SECTIONS

A. SECTION 00 2113 - INSTRUCTIONS TO BIDDERS

B. SECTION 00 7300 - SUPPLEMENTARY CONDITIONS

C. SECTION 00 7310 - SPECIAL CONDITIONS

D. SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS

1.3 DOCUMENTS

A. Sample “AIA Document A312-2010 Payment Bond” follows.

B. Sample document referenced above shall be edited to meet the contractual requirements of Grant County and those of the funding agency.

C. A copy of this document may be reviewed at the office of the Architect: ASA Architects, 201 North Alameda, Las Cruces, New Mexico 88005.

D. Attach a completed and sealed original of the Payment Bond with supporting power of attorney, under the surety’s corporate seal, for the agent/officer executing the bond.

END OF SECTION 00 6113.16 – PAYMENT BOND FORM

[Sample “AIA Document A312-2010 Payment Bond” follows]

THIS PAGE INTENTIONALLY LEFT BLANK

AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- **.1** have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- **.2** have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

SECTION 00 7213 - GENERAL CONDITIONS OF THE CONTRACT

PART 1 – GENERAL

1.1 SUMMARY

A. The form of the general conditions of the contract shall be AIA Document A201-2017 General Conditions of the Contract for Construction, Articles 1 through 15, except as modified, rescinded, or supplemented by the Supplementary Conditions or the Special Conditions, which take precedence.

B. A copy of this document may be reviewed at the office of the Architect:

ASA Architects
201 North Alameda
Las Cruces, New Mexico 88005

C. Copies of AIA document A201-2017 may be purchased from the American Institute of Architects.

D. Sample “AIA Document A201-2017 General Conditions of the Contract for Construction” follows.

END OF SECTION 00 7213 - GENERAL CONDITIONS OF THE CONTRACT

[Sample “AIA Document A201-2017 General Conditions of the Contract for Construction” follows]

THIS PAGE INTENTIONALLY LEFT BLANK

AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

TABLE OF ARTICLES

Init.

/

INDEX
(Topics and numbers in bold are Section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining

provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building

information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the

site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's

capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes

remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the

time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under

Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the

Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate

Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable

by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The

foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a Separate Contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers

to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not

constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents;
.3 terms of special warranties required by the Contract Documents; or
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;
.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the

endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The

Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the

Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- **.3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or Suppliers;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- **.1** Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- **.2** Accept assignment of subcontracts pursuant to Section 5.4; and
- **.3** Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- **.1** that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- **.2** that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- **.1** cease operations as directed by the Owner in the notice;
- **.2** take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- **.3** except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section

15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly

consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

SECTION 00 7300 - SUPPLEMENTARY CONDITIONS

The following Supplementary Conditions modify "AIA Document A201 – 2007, General Conditions of the Contract for Construction," (General Conditions). Where a portion of the General Conditions is modified or deleted by these Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

ARTICLE 1 GENERAL PROVISIONS

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

ADD the following paragraphs:

1.2.4 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

.1 The Owner-Contractor Agreement.
.2 Addenda, with one of a later date having precedence over one of an earlier date.
.3 The Supplementary Conditions.
.4 The General Conditions of the Contract for Construction.
.5 Specifications
.6 Drawings.

1.2.5 In the case of an inconsistency between the Specifications and the Drawings or within either Document not clarified by Addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation, at no additional cost to the Owner.

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

ADD the following paragraph:

1.5.3 The Owner will furnish free of charge One (01) set of Contract Drawings and One (01) copy of the Project Manual to the Contractor at the onset of construction. Contractor shall pay reproduction cost for any additional copies of Drawings and Project Manual.

ARTICLE 3 CONTRACTOR

3.2 Review of Contract Documents and Field Conditions by Contractor

ADD to paragraph 3.2.1 the following:

.1 The Contractor shall verify the exact location of all connection points, all items to be removed, all items to be replaced, and existing conditions prior to commencing the Work.

3.5 WARRANTY

ADD to paragraph 3.5.1, the following:

3.5.1 Contractor shall submit warranties in writing.

3.6 TAXES

ADD the following paragraph:

3.6.1 The bid amount shall exclude the applicable state gross receipts tax or applicable local option tax. The Owner shall be required to pay the applicable tax including any increase in

the applicable tax becoming effective after the date the contract is entered into. The applicable gross receipts tax or local options tax shall be shown as a separate amount on each billing or request for payment made under the contract, as outlined in the State Procurement Code Chapter 348, Section 5, Section 13-1-108 NMSA-108 as Amended. The Contractor shall in turn pay the applicable gross receipts tax or local option tax.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

ADD the following paragraph:

3.10.1.1 Completed Progress Schedule shall be submitted to the Architect no later than ten (10) calendar days after the date of the Agreement and shall be updated during construction as required to keep it current. Nothing in this requirement shall be deemed to be a usurpation of the Contractor's authority and responsibility to plan and schedule the Work as he sees fit, subject to all other requirements of the Contractors Documents.

3.14 Cutting and Patching

ADD the following paragraph:

.1 Any portion of the Work damaged by the Contractor not verifying the items included in paragraph 3.2.1.1 during the course of the Work shall be replaced or repaired by the Contractor at no additional expense to the Owner.

3.18 INDEMNIFICATION

DELETE paragraph 3.18.1 in its entirety and substitute the following:

3.18.1 Contractor shall hold harmless, indemnify and defend the Architect and the Owner and its "public employees" as defined in the New Mexico Tort Claims Act, Sections 41-4-1 to 41-4-29, NMSA 1978, against and from any and all claims, losses, demands, judgments, damages, liabilities, lawsuits, expenses, fees of attorney(s), costs and/or actions of any kind and nature whether from death(s), bodily and/or personal injury to person(s), damage(s) to property(ies) and/or any other nature whatsoever arising from or out of, connected with, resulting from or related to, directly, indirectly or allegedly, the Contractor's negligent and/or intentional act(s) and/or omission(s) in the Contractor's performance under this agreement. Contractor's operations and/or activities in connection herewith and/or Contractor's use and/or occupancy of the premises and/or improvements, including any and all negligent and/or intentional act(s) and/or omission(s) of the Contractor's officer(s), director(s), employees(s), servant(s), agent(s), representative(s), customer(s), invitee(s) patron(s), contractor(s), subcontractor(s), successor(s), assign(s), and/or supplier(s), as well as all other persons doing business with the Contractor. The Contractor's agreement to hold harmless, indemnify and defend shall not be affected or terminated by the cancellation or expiration of the term or any renewal or any other termination of this Agreement. Contractor shall at all times during the term of the Agreement have and keep in force contractual liability insurance in the amounts as set forth in the New Mexico Tort Claims Act, supra. The contracting for any insurance by Contractor does not in any way limit, modify or negate the Contractor's agreement to hold harmless, indemnify and defend the Architect and the Owner and its "public employees" as defined in the New Mexico Tort Claims Act, supra.

DELETE paragraph 3.18.2 in its entirety and substitute the following:

3.18.2 Nothing in this Contract Document is intended to or shall be deemed to constitute a partnership or joint venture between the parties. The Contractor and its officer(s), director(s), employee(s), servant(s), agent(s) and representative(s) are and shall remain independent contractors under this Agreement and shall at no time be deemed the officer(s), agent(s), servant(s), employee(s) and/or representative(s) of

the Owner or Architect so as to bind the Owner or Architect in any respect. The Contractor shall be responsible to all persons for the negligent and/or intentional act(s) and/or omission(s) of the Contractor, its officer(s), director(s), employee(s), servant(s), agent(s) and/or representative(s) and the Owner and Architect shall in no way be responsible.

ADD the following paragraphs:

3.18.3 The Owner and its "public employees" as defined in the New Mexico Tort Claims Act, supra, do not waive sovereign immunity, do not waive any defense(s) and/or do not waive any limitation(s) of liability pursuant to law. No provision in this Agreement modifies and/or waives any of the provisions of the New Mexico Tort Claims Act, supra, and the amendments thereto.

3.18.4 It is specifically agreed between the parties executing this Agreement that it is not intended by any of the provisions of any part of the Agreement to create a public or any member thereof a third party beneficiary or to authorize anyone not a party to the Agreement to maintain a suit(s) or wrongful death(s), bodily and/or personal injury(ies) to person(s), damage(s) to property(ies) and/or any other claim(s) and/or cause(s) of action whatsoever pursuant to the provisions of this Agreement.

3.18.5 Contractor shall hold harmless and indemnify the Owner and its "public employees" from any and all liability, claims, lawsuits damages, or costs arising out of or allegedly arising out of the performance of this contract; except for any such liability arising out of:

.1 The preparation of maps, drawings, opinions, reports, surveys, change orders, designs or specifications prepared by the Owner or its "public employees", or
.2 The giving or the failure to give direction by the Owner or any of its "public employees", where the giving or failure to give such direction is the immediate proximate cause of the injury or damage complained of, or
.3 Any injury or damage which is solely the result of a negligent act or omission of the Owner or any of its "public employees".

Whenever the Owner receives a claim, notice of claim, summons or demand which is or could be subject to the foregoing indemnification, such claim, notice summons, or demand shall be immediately forwarded to the Contractor to be forwarded to the Contractor's insurance carrier for response and defense as required.

ARTICLE 4 ARCHITECT

4.2 ADMINISTRATION OF THE CONTRACT

DELETE from paragraph 4.2.10, the second sentence in its entirety.

ADD to paragraph 4.2.13, the following:

4.2.13 The term "aesthetic effect" as used herein refers to color, texture, profile and juxtaposition of masses. The Architect shall be the sole interpreter of the design intent with respect to such matters, but the Architect's authority with respect thereto shall not contravene any other rights of either the Owner or the Contractor ascribed to them by other provisions of the Contract.

ARTICLE 8 TIME

8.1 DEFINITIONS

ADD the following paragraph:

8.1.5 The contract time shall be substantially completed within the number of consecutive calendar days indicated in the Agreement, "Notice to Proceed", or other written order.

8.3 DELAYS AND EXTENSIONS OF TIME

ADD the following paragraph:

8.3.4 The Contractor shall not be entitled to claim any damages for delay from any cause whatsoever in the progress of the work or any portion thereof

ARTICLE 9 PAYMENTS AND COMPLETION

9.2 SCHEDULE OF VALUES

ADD the following paragraph:

9.2.1 The Schedule of Values shall be submitted prior to the start of construction and shall be approved by the Architect prior to the first submitted Pay Application. The Schedule of Values shall be itemized, in detail by division, as a basis for approving work completed. Refer to Section 011200 "Price and Payment Procedures" for additional information.

9.3 APPLICATIONS FOR PAYMENT

ADD to paragraph 9.3.1, the following:

9.3.1: Applications for Payment shall be based on the previously approved Schedule of Values of labor and materials incorporated in the Work, and of all stable materials suitably stored at the site for the period covered for each Application for Payment, up to and including the last day of the month covered by the Application for Payment , less the aggregate total of all previous payments; provided that the aggregate total of all monthly payments shall not exceed the Contract Sum. Application shall be made on AIA Document G-702 & G-702A.

ADD the following paragraphs:

9.3.1.3 Contractor shall base their Application for Payment on materials stored and work completed under this Contract. The Contractor shall submit to the Architect an Application for Payment supported by a current schedule of values and such other data substantiating the Contractor's right to payment no later than five days after the end of the period covered for each Application for Payment. The Owner shall make progress payments for properly allocable materials and equipment stored at the project site, or at some other location agreed upon in writing, and for schedule of value items. The Owner shall not withhold retainage.

9.3.1.4 All applicable taxes, whether now enacted into law or hereafter made applicable, shall appear as a separate line item on Contractor's pay requests.

9.3.1.5 In the event the Contractor submits an improperly completed Application for Payment, the Architect shall, within seven days after receipt, give notice of the exceptions noted in the Application for Payment to the Contractor. Upon receipt of this notice, the Contractor shall be responsible for any timely completion and re-submission of the corrected Application for Payment to the Architect.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

ADD the following paragraphs:

9.5.4 The Owner may withhold or, on account of subsequently discovered evidence, nullify in whole or part, any Certificate for Payment to such extent as may be necessary to protect themselves from loss on account of unsatisfactory or unacceptable completion of any

Schedule of Value line item, including Project Closeout Requirements. Such action shall be based on, but not limited to, the following:

.1 Defective work not remedied.
.2 Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor.
.3 Failure of the Contractor to make payments properly to subcontractors and/or for material and/or labor.
.4 Damage to another contractor.
.5 A reasonable doubt that the Contract can be completed for the unpaid balance.
.6 When the issues listed above are resolved or the Contractor provides a Surety Bond satisfactory to the Architect and Owner which will protect the Owner for the withheld amount, payment shall be made for amounts withheld.

9.6 PROGRESS PAYMENTS

Add to paragraph 9.6.1, the following:

9.6.1 Commencing on the date of receipt by the Owner, full payment shall be issued on an undisputed pay request in accordance with the New Mexico Prompt Payment Act and Public Law No. 115-254**.**

ADD the following paragraph:

9.6.8 Payment due to the Contractor in cash may not be assigned or pledged by the Contractor.

9.8 SUBSTANTIAL COMPLETION

ADD to paragraph 9.8.1, the following:

9.8.1 The Work, or portion thereof shall not be deemed to be substantially complete until the Owner has signed the Certificate of Substantial Completion prepared by the Architect and the Owner has received from the Contractor all "Close-Out" Documents specified in the Contract Documents. Final Acceptance of the Work will be approved and given by Grant County when all of the Work has been completed and conforms to the Contract Documents as determined by the Architect.

9.11 LIQUIDATED DAMAGES

ADD the following paragraph:

9.11.1 The Owner will suffer financial loss if the project is not substantially completed on the date set forth in the Contract Documents. The Contractor (and his surety) shall be liable for and shall pay to the Owner Three Hundred Dollars ($300.00) for each consecutive calendar day of delay past the contract time until the work is Substantially Completed.

ARTICLE 11 INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

ADD to paragraph 11.1.1, the following:

11.1.1.9 The Liability insurance required by paragraph 11.1.1 shall be on a Commercial General Basis, including the following:

General Liability: Premises, operations, explosions, collapse hazard, underground hazard, contractual insurance, products with completed operations, broad form property damage, independent contractor's and personal injury. The limits shall be no less than $1,000,000 combined single limits for bodily injury and property

damage.

Automobile Liability: Owned, hired and non-owned vehicles. The limits of liability shall be no less than $1,000,000 combined single limit bodily injury and property damage.

Worker's Compensation: Required along with state statutory employer's liability limits.

Notification: The certificate must state that coverage afforded under the policies will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the County.

Coverage must remain in force for the duration of the project.

ADD to paragraph 11.1.3, the following:

11.1.3.1 Contractor shall furnish one copy of the Certificates herein required for each copy of the Agreement, specifically setting forth evidence of all coverage required by paragraphs 11.1.1 and 11.1.2. The form of the Certificate shall be AIA Document G-1705 or other approved form. Contractor shall furnish the Owner copies of any endorsements that are subsequently issued amending coverage or limits.

ADD the following paragraphs:

11.1.5 Commercial general liability and automobile liability insurance shall include as additional named insured: The Owner, the Architect, the Architect's consultants and engineers, and each of their officers, employees and agents, and any other persons with an insurable interest designated by the Owner as an additional named insured.

11.1.6 Should any of the above described policies be canceled before the expiration date thereof, the issuing company will mail thirty (30) day written notice to the certificate holder named. Failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives.

11.3 PROPERTY INSURANCE

ADD to paragraph 11.3.1, the following:

11.3.1 The Owner will assume liability for the perils of fire, lightning, extended coverage as called for, and in addition will provide coverage for vandalism and malicious mischief (Builder's Risk Insurance). The Owner's insurance is subject to a deductible which the Contractor shall be liable for on any claim he makes.

11.4 PERFORMANCE BOND AND PAYMENT BOND

ADD to paragraph 11.4.1, the following:

11.4.1.1 Execution of approved Performance Bond and approved Payment Bond, each in an amount of not less than one hundred percent (100%) of the contract price, conditioned upon the faithful performance of the Contract and upon payment of all persons supplying labor or furnishing materials, will be required of the successful bidder. Performance Bond and Payment Bond shall be executed by a surety company authorized to do business in the State of New Mexico. Surety shall be approved in Federal Circular 570 as published by the United States Treasury Department or the State Board of Finance. Performance Bond and Payment Bond shall be executed on the latest edition of AIA Form A-311.

ADD the following paragraphs:

11.4.3 Attorneys-In-Fact who sign Bid Bonds or Contract Bonds must file with each bond, a certified and effectively dated copy of their Power of Attorney.

11.5.4 Premium for bonds shall be paid for by the Contractor or his subcontractors.

END OF SECTION 00 7300 - SUPPLEMENTARY CONDITIONS

SECTION 00 7310 - SPECIAL CONDITIONS

PART 1 – GENERAL

1.1 PROJECT MEETINGS

A. The Owner's Project Manager shall schedule, with authorized representatives of the Contractor, meetings to review progress of the project. These meetings shall be on whichever practice schedule the Contractor selects.

B. The agenda for these meetings shall be discussed in advance so that all parties can prepare in advance. Any discussions which occur and any decisions which are made at the meeting shall be verified in writing by the Engineer of Record, Contractor or the appropriate participant.

1.2 ASBESTOS CONTAINING BUILDING MATERIALS (ACBM)

A. No new Asbestos Containing Building material (ACBM) will be allowed in any form or shape whatever. (This statement takes priority and supersedes any statement or section which may contain asbestos).

B. The Owner has an ongoing program to determine the presence of ACBM. Any ACBM determined to be in work areas shall be removed or contained by the Owner (or their representative) prior to Contractor's commencement or continuation of work.

C. Upon completion of the work the Contractor shall certify in writing that no asbestos or ACBM has been used in the construction.

1.3 ALLOWANCES

A. The Contractor shall include in their bid and in their schedule of values, an Owner's modification allowance of $5,000.00 covering the cost of adjustments to the scope resulting from undiscovered conditions present in the building.

PART 2 – STATE OF NEW MEXICO PUBLIC WORKS REQUIREMENTS

2.1 PREDETERMINED WAGE RATES

A. The Contractor warrants and agrees that they and all subcontractors shall comply with all applicable provisions of the New Mexico Public Works Minimum Wage Act, §13-4-11 NMSA 1978 (if the project is over $60,000); and other statutes pertaining to public works in New Mexico. The attached Minimum Wage Rate Determinations are declared to be prevailing and apply to the construction.

B. The Contractor and each of the Subcontractors shall maintain copies of the certified weekly payrolls prepared in accordance with these regulations, for inspection on an as needed basis during the contract period up until a final payment is made. Copies of certified weekly payrolls shall be submitted to the Project Management Section of the City of Las Cruces Facilities Department.

C. Should there be a difference, for any one job position or labor classification, between the minimum wage rates shown in the New Mexico Wage Decision issued for this contract, including subsequent modifications, and the minimum wage rates posted in the Federal Wage Decision, also as issued as a part of this contract; then the higher of the two rates for any and all positions shall prevail and shall be paid to that particular class of position/laborer. Compliance with the Federal Labor Standards Provisions, included as a part of this contract, is required regardless of which individual wage decision is applied to a specific position.

2.2 SUBCONTRACTOR SUBSTITUTION

A. No Contractor whose bid is accepted shall substitute any person as Subcontractor in place of the
Subcontractor listed in the original bid, except that the Owner shall consent to the substitution of another person as a Subcontractor in the following circumstances:
   1. When the subcontractor listed in the bid, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract, when such written contract, based upon the general terms, conditions, plans and specifications for the project involved and the terms of such subcontractor's written bid, is presented to him by the contractor;
   2. When the listed subcontractor listed in the original bid becomes bankrupt or insolvent prior to execution of a subcontract.
   3. When the using agency refuses to approve the subcontractor listed in the original bid provided such approval has been reserved in the bidding documents;
   4. When the subcontractor listed in the original bid fails or refuses to perform his subcontract,
   5. When the contractor demonstrates to the using agency or its duly authorized office that the name of the subcontractor was listed as the result of an inadvertent clerical error;
   6. When a bid alternate accepted by the using agency causes the listed subcontractor's bid not to be low;
   7. When the contractor can substantiate to the using agency that a listed subcontractor's bid is incomplete,
   8. When the listed subcontractor fails or refuses to meet the bond requirements of the contractor; or
   9. When it is determined that the listed subcontractor does not have a proper license to perform the work and the contractor has submitted the name of the subcontractor along with proof that the subcontractor bid work for which he was not licensed by the construction industries division of the regulation and licensing department.

B. Prior to approval of the Contractor's request for such substitution, the Owner shall give notice in writing to the listed Subcontractor of the Contractor's request to substitute and of the reasons for such request. Such notice shall be served by certified or registered mail to the last known address of the Subcontractor. The listed Subcontractor who has been so notified has five working days within which to submit written objections to the substitution to the Owner. Failure to file such written objections shall constitute the listed Subcontractor's consent to the substitution. If written objections are filed, the Owner shall give at least five working days' notice in writing to the listed subcontractor of a hearing by the Owner on the contractor's request for substitution.

C. No Contractor whose bid is accepted shall permit any such subcontract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original Subcontractor listed in the original bid without the consent of the Owner.

D. No Contractor whose bid is accepted, other than in the performance of change orders causing changes or deviations from the original contract, shall sublet or subcontract any portion of the work in excess of the listing threshold as to which his original bid did not designate a Subcontractor unless the Contractor fails to receive a bid for a category of work. Under such circumstances, the Contractor may subcontract. The contractor shall designate on the listing form that no bid was received.

PART 3 – REQUIRED FEDERAL CONTRACT PROVISIONS

3.1 SUMMARY

The following Supplementary Provisions, Revised June 19, 2018 (i.e. Required Federal Contract Provisions) as consolidated by the FAA in support of its Airport Improvement Program (AIP) modify and

amend pertinent sections of the Instructions to Bidders, the General Conditions (AIA Document A201 – 2017, General Conditions of the Contract for Construction, as amended for the work of this contract), and the Supplementary Conditions. Where a portion of the sections listed in the preceding statement are modified or deleted by these Special Conditions, the unaltered portions of the Instructions to Bidders, the General Conditions, and the Supplementary Conditions shall remain in effect.

3.2 CONTRACTING AUTHORITY

The Federal Aviation Administration (FAA) is not a party to the contract. Grant County is the contractual authority for establishing and administering the contract agreements and is responsible for all contractual matters, including evaluation and award of contract, resolution of claims and disputes, and settlement of litigation issues.

3.3 CONTRACTOR NONCOMPLIANCE

A breach of any of the stipulations contained in these “Required Contract Provisions” may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension/debarment or any other action determined to be appropriate by the County and FAA.

3.4 “Supplementary Provisions” as consolidated by the FAA, Revised June 19, 2018

END OF SECTION 00 7310 - SPECIAL CONDITIONS

[“Part A – Federal Contract Provisions for Construction and Equipment Contracts” follow.]

SUPPLEMENTARY PROVISIONS

PART A - FEDERAL CONTRACT PROVISIONS FOR CONSTRUCTION AND EQUIPMENT CONTRACTS

APPLICATION OF REFERENCES

ALL REFERENCES MADE HEREIN TO "CONTRACTOR", "BIDDER", AND "OFFEROR" SHALL PERTAIN TO THE PRIME CONTRACTOR. ALL REFERENCES MADE HEREIN TO "SUBCONTRACTOR" SHALL PERTAIN TO ANY AND ALL SUBCONTRACTORS UNDER CONTRACT WITH THE PRIME CONTRACTOR OR A SUBCONTRACTOR.

ALL REFERENCES MADE HEREIN TO "CONSULTANT" SHALL PERTAIN TO ARCHITECT/ENGINEER (A/E) UNDER CONTRACT WITH THE SPONSOR. ALL REFERENCES MADE HEREIN TO "SUBCONSULTANT" SHALL PERTAIN TO ANY AND ALL SUBCONSULTANTS UNDER CONTRACT WITH THE A/E.

ALL REFERENCES MADE HEREIN TO "SPONSOR" AND "OWNER" SHALL PERTAIN TO THE STATE, CITY, AIRPORT AUTHORITY OR OTHER PUBLIC ENTITY EXECUTING CONTRACTS WITH THE PRIME CONTRACTOR AND/OR THE A/E.

PROVISIONS APPLICABLE TO ALL CONTRACTS

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $2,000

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $3,500

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $10,000

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $25,000

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $100,000

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $150,000

PROVISIONS APPLICABLE TO ALL CONTRACTS

ACCESS TO RECORDS AND REPORTS

Reference: 2 CFR § 200.333, 2 CFR § 200.336, and FAA Order 5100.38

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration, and the Comptroller General of the United States or any of their duly authorized representatives, access to any books, documents, papers, and records of the Contractor, which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

BUY AMERICAN PREFERENCE

Reference: 49 USC § 50101

The Contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration (FAA) has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A Bidder or Offeror must complete and submit the Buy America certification included herein with their bid or offer. The Owner will reject as nonresponsive any bid or offer that does not include a completed Certificate of Buy American Compliance.

CIVIL RIGHTS – GENERAL

Reference: 49 USC § 47123

The Contractor agrees that it will comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

CIVIL RIGHTS – TITLE VI ASSURANCES

Title VI Solicitation Notice

The Sponsor, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerers that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Compliance with Nondiscrimination Requirements

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes Consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts And Authorities and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter

into the litigation to protect the interests of the United States.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR Part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

DISADVANTAGED BUSINESS ENTERPRISE

Reference: 49 CFR Part 26

Solicitation Language (Project Goal)

Information Submitted as a matter of bidder responsiveness:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

As a condition of bid responsiveness, the Bidder or Offeror must submit the following information with their proposal on the forms provided herein:

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1)
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
5) If Bidder or Offeror cannot meet the advertised project DBE goal; evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR Part 26.

Information submitted as a matter of bidder responsibility:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

The successful Bidder or Offeror must provide written confirmation of participation from each of the DBE firms the Bidder or Offeror lists in its commitment within five (5) days after bid opening.

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1)
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal; and
5) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26.

Race/Gender Neutral

The requirements of 49 CFR Part 26 apply to this contract. It is the policy of the Owner to practice nondiscrimination based on race, color, sex or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

Contract Assurance (§ 26.13)

The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of U.S. Department of Transportation-assisted

contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Owner deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;
2) Assessing sanctions;
3) Liquidated damages; and/or
4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (§26.29)

The Prime Contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than thirty (30) calendar days from the receipt of each payment the Prime Contractor receives from the Owner. The Prime Contractor agrees further to return retainage payments to each subcontractor within thirty (30) calendar days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner. This clause applies to both DBE and non-DBE subcontractors.

ENERGY CONSERVATION REQUIREMENTS

Reference: 2 CFR § 200 Appendix II(H)

Contractor and Subcontractor(s) agree to comply with mandatory standards and policies relating to energy efficiency as contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201 et seq).

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

Reference: 29 USC § 201, et seq.

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR Part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

Reference: 20 CFR Part 1910

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). The employe must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of

Labor – Occupational Safety and Health Administration.

RIGHT TO INVENTIONS

Reference: 2 CFR § 200 Appendix II(F) and 37 CFR §401

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR Part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within in the 37 CFR §401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental or research work.

SEISMIC SAFETY

Reference: 49 CFR Part 41

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

TAX DELINQUENCY AND FELONY CONVICTIONS

Reference: Sections 415 and 416 of Title IV, Division L of the Consolidated Appropriations Act, 2014 (Pub. L. 113-76) and DOT Order 4200.6

The Contractor certifies:

1) It is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
2) It is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months. A felony conviction is a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.

The Contractor agrees to incorporate the above certification in all lower tier subcontracts.

TRADE RESTRICTION CERTIFICATION

Reference: 49 USC § 50104 and 49 CFR Part 30

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror:

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (U.S.T.R.);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the U.S.T.R; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R. or

2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such U.S.T.R. list or

3) who incorporates in the public works project any product of a foreign country on such U.S.T.R. list;

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a Contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by U.S.T.R, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the Federal Aviation Administration.

VETERAN'S PREFERENCE

Reference: 49 USC § 47112(c)

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $2,000

COPELAND "ANTI-KICKBACK' ACT

Reference: 2 CFR § 200 Appendix II(D) and 29 CFR Parts 3 and 5

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 U.S.C. 874 and 40 U.S.C. 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

DAVIS-BACON REQUIREMENTS

Reference: 2 CFR § 200 Appendix II(D) and 29 CFR Part 5

1.*Minimum Wages*

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage

determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided* that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii) (A) thru (D)

(A)) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) days of receipt and so advise the contracting officer or will notify the contracting officer within the thirty (30)-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) days of receipt and so advise the contracting officer or will notify the contracting officer within the thirty (30)-day period that additional time is necessary.

(D)) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide

fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program: *Provided*, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2.*Withholding*

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3.*Payrolls and basic records*

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and that show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) (A) thru (D)

(A)) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the

payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at https://www.dol.gov/whd/forms/wh347instr.htm or its successor site. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a Prime Contractor to require a subcontractor to provide addresses and social security numbers to the Prime Contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B)) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) The payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i) and that such information is correct and complete;

(2) Each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) Each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C)) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor

or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4.*Apprentices and Trainees*

(i) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first nintey (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination.

Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee

must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination.

Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5.*Compliance with Copeland Act Requirements*

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6.*Subcontracts*

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7.*Contract Termination: Debarment*

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.

8.*Compliance with Davis-Bacon and Related Act Requirements*

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9.*Disputes Concerning Labor Standards*

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors)

and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10.*Certification of Eligibility*

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) he penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $3,500

DISTRACTED DRIVING

Reference: Executive Order 13513 and DOT Order 3902.10

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving" (10/1/2009) and DOT Order 3902.10 “Text Messaging While Driving” (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or sub-grant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $3,500 and involve driving a motor vehicle in performance of work activities associated with the project.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $10,000

AFFIRMATIVE ACTION REQUIREMENT

Reference: 41 CFR Part 60-4 and Executive Order 11246

1. The Bidder’s or Offeror’s attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables:	Goal:
Goals for minority participation for each trade:	0.00%
Goals for female participation in each trade:	6.9%

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within ten (10) working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.
4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is:

State	County	City

EQUAL EMPLOYMENT OPPORTUNITY (EEO)

Reference: 2 CFR 200, Appendix II(C), 41 CFR § 60-1.4, 41 CFR § 60-4.3, and Executive Order 11246

Equal Opportunity Clause

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identify or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in

conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided*, *however*, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Standard Federal Equal Employment Opportunity Construction Contract Specifications

1. As used in these specifications:

    a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

    b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

    c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

    d. "Minority" includes:

(1) Black (all) persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7.a through 7.p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the Contractor during the training

period and the Contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or female sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite

supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7.a through 7.p). The efforts of a Contractor association, joint Contractor union, Contractor community, or other similar groups of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7.a through 7.p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to

documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally), the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

PROCUREMENT OF RECOVERED MATERIALS

Reference: 2 CFR § 200.322, 40 CFR Part 247, and Solid Waste Disposal Act

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR

Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

a) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or,

b) The Contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at:
https://www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the Contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

b) Fails to meet reasonable contract performance requirements; or

c) Is only available at an unreasonable price.

PROHIBITION OF SEGREGATED FACILITIES

Reference: 41 CFR § 60

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

TERMINATION OF CONTRACT

Reference: 2 CFR § 200 Appendix II(B) and FAA Advisory Circular 150/5370-10, Section 80-09

Termination for Convenience (Construction & Equipment Contracts)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2) documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
3) reasonable and substantiated claims, costs and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4) reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

Termination for Default (Construction)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes conditions, rights and remedies associated with Owner termination of this contract due to default of the Contractor.

Termination for Default (Equipment)

The Owner may, by written notice of default to the Contractor, terminate all or part of this Contract if the Contractor:

1. Fails to commence the Work under the Contract within the time specified in the Notice- to-Proceed;
2. Fails to make adequate progress as to endanger performance of this Contract in accordance with its terms;
3. Fails to make delivery of the equipment within the time specified in the Contract, including any Owner approved extensions;
4. Fails to comply with material provisions of the Contract;
5. Submits certifications made under the Contract and as part of their proposal that include

false or fraudulent statements; or

6. Becomes insolvent or declares bankruptcy;

If one or more of the stated events occur, the Owner will give notice in writing to the Contractor and Surety of its intent to terminate the contract for cause. At the Owner's discretion, the notice may allow the Contractor and Surety an opportunity to cure the breach or default.

If within ten (10) days of the receipt of notice, the Contractor or Surety fails to remedy the breach or default to the satisfaction of the Owner, the Owner has authority to acquire equipment by other procurement action. The Contractor will be liable to the Owner for any excess costs the Owner incurs for acquiring such similar equipment.

Payment for completed equipment delivered to and accepted by the Owner shall be at the Contract price. The Owner may withhold from amounts otherwise due the Contractor for such completed equipment, such sum as the Owner determines to be necessary to protect the Owner against loss because of Contractor default.

Owner will not terminate the Contractor's right to proceed with the Work under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such acceptable causes include: acts of God, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, and severe weather events that substantially exceed normal conditions for the location.

If, after termination of the Contractor's right to proceed, the Owner determines that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the Owner issued the termination for the convenience the Owner.

The rights and remedies of the Owner in this clause are in addition to any other rights and remedies provided by law or under this contract.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $25,000

DEBARMENT AND SUSPENSION

Reference: 2 CFR Part 180 (Subpart C), 2 CFR Part 1200, DOT Order 4200.5

Certification of Bidder/Offerer Regarding Debarment

By submitting a bid/proposal under this solicitation, the Bidder or Offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

Certification of Lower Tier Contractors Regarding Debarment

The successful Bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful Bidder will accomplish this by:

1. Checking the System for Award Management at website: https://www.sam.gov.
2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.

3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the Federal Aviation Administration (FAA) later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $100,000

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

Reference: 2 CFR § 200 Appendix II (E)

1. Overtime Requirements.

No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same Prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same Prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

Reference: 31 U.S.C. § 1352 – Byrd Anti-Lobbying Amendment, 2 CFR part 200, Appendix II(J), and 49 CFR part 20, Appendix A

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $150,000

BREACH OF CONTRACT TERMS

Reference: 2 CFR § 200 Appendix II(A)

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific

date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

CLEAN AIR AND WATER POLLUTION CONTROL

References: 2 CFR § 200 Appendix II(G)

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 U.S.C. § 740-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. § 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

The Contractor agrees to incorporate the above certification in all lower tier subcontracts that exceed $150,000.

PAGE INTENTIONALLY LEFT BLANK

SECTION 00 7343 – NEW MEXICO - DWS WAGE DETERMINATION

PART 1 - GENERAL

1.1 Related Sections

A. Section 00 2113 – Instructions to Owners
B. Section 00 7310 – Special Conditions

1.2 Wage Decision Number

A. Prevailing wage decision No. GR-19-1244-B as issued by the New Mexico Department of Workforce Solutions Public Works Bureau applicable to this contract follows.

B. The wage determination is applicable to all subcontracts with a contract amount exceeding the listing threshold per the Subcontractor Listing Form included with the Bid Form. The wage rates shall be distributed to or otherwise made available to those affected subcontractors and shall be included in subcontracts between the Contractor and Subcontractors.

END OF SECTION 00 7343

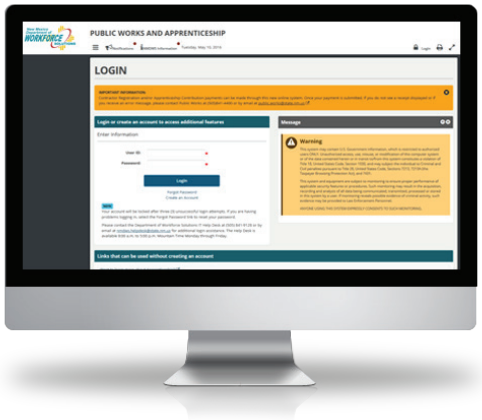
[NEW MEXICO-DWS WAGE DECISION FOLLOWS]

PUBLIC WORKS & **APPRENTICESHIP APPLICATION**

The Public Works and Apprenticeship Application (PWAA) is the online database exchange between the New Mexico Department Workforce Solutions, apprenticeship programs, contractors, and contracting agencies. The PWAA is an interactive tool providing many self-service activities including: registering apprentices; issuing apprentice certifications; entering wage decision requests; completing public works paperwork; making apprenticeship contributions; and contractor registration/renewals.

If you have questions about account creation, system features, or changes in processes, contractors and contracting agencies are encouraged to contact the New Mexico Department of Workforce Solutions Public Works Office at (505) 841-4400 or via email at **public.works@state.nm.us**.

For questions regarding apprenticeship, please contact the New Mexico Apprenticeship Office at (505) 841-8565 or via email at **apprenticeship.info@state.nm.us**.



www.dws.state.nm.us/pwaa

CONTACT **INFORMATION**

Labor Relations Division

Wage & Hour and Public Works Offices

Offices are open Monday-Friday, 8am-5pm

Albuquerque Office
401 Broadway Blvd NE
Albuquerque, NM 87102
Phone: (505) 841-4400
Fax: (505) 841-4424

Las Cruces Office
226 S. Alameda Blvd
Las Cruces, NM 88005
Phone: (575) 524-6195
Fax: (575) 524-6194

Santa Fe Office
1596 Pacheco Street, Suite 103
Santa Fe, NM 87505
Phone: (505) 827-6817
Fax: (505) 827-9676

www.dws.state.nm.us/public-works

www.dws.state.nm.us/pwaa

CONNECT WITH US!

Twitter: www.twitter.com/nmdws

YouTube: www.youtube.com/nmdws

Instagram: www.instagram.com/nmdws

Revised 7/2016

New Mexico Department of WORKFORCE SOLUTIONS

New Mexico Public Works

WWW.DWS.STATE.NM.US/PUBLIC-WORKS

FOR COMPLETE INFORMATION, VISIT OUR WEBSITE AT **WWW.DWS.STATE.NM.US/PUBLIC-WORKS**

PUBLIC WORKS **MINIMUM WAGE ACT**

The New Mexico Public Works Minimum Wage Act applies to employers and employees working on state and locally funded public works construction projects. Information presented here is not an official interpretation of the Act, but is intended to serve as a general guide to the law.

Find additional information and rules and regulations on the Public Works Minimum Wage Act at www.dws.state.nm.us/Public-Works

WHEN DOES **THE ACT APPLY?**

Any state or locally funded construction project totaling more than $60,000 is covered by the Act. The Labor Relations Division (LRD) of the New Mexico Department of Workforce Solutions (NMDWS) works to ensure that every employee on the project is paid the correct wage rate.

HOW ARE **WAGE RATES SET?**

The Labor Relations Division sets the minimum wage rates for all Public Works projects each year. Wage rates include a base rate of pay, a fringe benefit rate, and apprenticeship training contributions. Specific information regarding wage rates can be found at **www.dws.state.nm.us**.

WHAT IS A **WAGE DECISION?**

A wage decision is the wage rate for a specific public works construction project. The person putting together project bid documents requests a wage decision by submitting a request that describes the scope of work. The type of work determines the type of rates issued. The four types of projects are:

- TYPE **A** — **Street, highway, utility, and light engineering construction**
- TYPE **B** — **General building**
- TYPE **C** — **Residential**
- TYPE **H** — **Heavy engineering construction**

To request a wage decision or obtain additional information about wage decisions, create an account and login to the Public Works and Apprenticeship Application at **www.dws.state.nm.us/PWAA**.

PUBLIC WORKS **PROJECT CHECKLIST**

- ☑ A ***Notice of Award*** is due from the contracting agency identifying the general contractor before work starts.
- ☑ A subcontractor list is due from the contracting agency/general contractor listing all subcontractors before work starts.
- ☑ A ***Statement of Intent to Pay Prevailing Wages*** is due from each contractor, subcontractor, and each tier contractor before work starts.
- ☑ An ***Apprenticeship Contribution or Compliance Statement*** (for all except Type A projects) is due by the 15th of each month (for the previous month's work) from all contractors, subcontractors, and each tier of contractors.
- ☑ A wage rate poster must be displayed in an easily accessible place at the job site to show all employees what their minimum rates of pay are.
- ☑ An ***Affidavit of Wages Paid*** must be submitted after a contractor finishes work but before the final payment is made.

LABOR RELATIONS DIVISION **WWW.DWS.STATE.NM.US**

121 Tijeras Ave NE, Suite 3000
Albuquerque, NM 87102
Phone: 505-841-4400
Fax: 505-841-4424

226 South Alameda Blvd
Las Cruces, NM 88005
Phone: 575-524-6195
Fax: 575-524-6194

1596 Pacheco St, Suite 103
Santa Fe, NM 87505
Phone: 505-827-6817
Fax: 505-827-9676

Wage Decision Approval Summary

1) Project Title: Grant County Airport Terminal Renovation
Requested Date: 07/02/2019
Approved Date: 07/03/2019
Approved Wage Decision Number: GR-19-1244-B

Wage Decision Expiration Date for Bids: 10/31/2019

2) Physical Location of Jobsite for Project:
Job Site Address: 158 Airport Road
Job Site City: Hurley
Job Site County: Grant

3) Contracting Agency Name (Department or Bureau): COUNTY OF GRANT
Contracting Agency Contact's Name: Rob Price
Contracting Agency Contact's Phone: (575) 526-3111 Ext.

4) Estimated Contract Award Date: 08/22/2019

5) Estimated total project cost: $507,000.00
a. Are any federal funds involved?: Yes - $50,000.00
b. Does this project involve a building?: Yes - Renovation of approximately 2,340 square feet of a 4,180 square foot airport terminal building
c. Is this part of a larger plan for construction on or appurtenant to the property that is subject to this project?: No
d. Are there any other Public Works Wage Decisions related to this project?: No
e. What is the ultimate purpose or functional use of the construction once it is completed?: Improvement of airport operations in particular passenger services

6) Classifications of Construction:

Classification Type and Cost Total	Description
General Building (B) **Cost:** $507,000.00	general construction including restroom renovation, accessibility improvements, HVAC system renovation, electrical work (lighting and power), door and window replacement, reroofing, finish work (flooring, painting, ceilings), site work (accessible parking)

LABOR RELATIONS DIVISION
121 Tijeras Ave NE, Suite 3000
Albuquerque, NM 87102
Phone: 505-841-4400
Fax: 505-841-4424

PUBLIC WORKS PROJECT REQUIREMENTS

As a participant in a Public Works project valued at more than $60,000 in the state of New Mexico, the following list addresses many of the responsibilities that are defined by statute or regulation to each project stakeholder.

Contracting Agency

- Ensure that all contractors wishing to bid on a Public Works project when the project is $60,000 or more are actively registered with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa (Contractor Registration) prior to bidding.
- Please submit Notice of Award (NOA) and Subcontractor List(s) to the PWAA website promptly after the project is awarded.
- Please update the Subcontractor List(s) on the PWAA website whenever changes occur.
- All sub-contractors and tiers (excluding professional services) regardless of contract amount must be listed on the Subcontractor List and must adhere to the Public Works Minimum Wage Act.
- Ninety days after project completion please go into the PWAA system and close the project. Only contracting agencies are allowed to close the project. Agents or contractors are not allowed to close projects.

General Contractor

- Provide a complete Subcontractor List and Statements of Intent (SOI) to Pay Prevailing Wages for all contractors, regardless of amount of work, to the contracting agency within 3 (three) days of award.
- Ensure that all subcontractors wishing to bid on a Public Works project have an active Contractor Registration with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa prior to bidding when their bid will exceed $60,000.
- Make certain the Public Works Apprentice and Training Act contributions are paid either to an approved Apprenticeship Program or to the Public Works Apprentice and Training Fund.
- Confirm the Wage Rate poster, provided in PWAA, is displayed at the job site in an easily accessible place.
- When the project has been completed, make sure the Affidavits of Wages Paid (AWP) are sent to the contracting agency.
- All subcontractors and tiers (excluding professional services) regardless of contract amount must pay prevailing wages, be listed on the Subcontractor List, and adhere to the Public Works Minimum Wage Act.

Subcontractor

- Ensure that all subcontractors wishing to bid on a Public Works project have an active Contractor Registration with the Public Works and Apprenticeship Application (PWAA) website: http://www.dws.state.nm.us/pwaa prior to bidding when their bid will exceed $60,000.
- Make certain the Public Works Apprentice and Training Act contributions are paid either to an approved Apprenticeship Program or to the Public Works Apprentice and Training Fund.
- All subcontractors and tiers (excluding professional services) regardless of contract amount must pay prevailing wages, be listed on the Subcontractor List, and adhere to the Public Works Minimum Wage Act.

Additional Information

Reference material and forms may be found in the New Mexico Department of Workforce Solutions Public Works web pages at: https://www.dws.state.nm.us/Labor-Relations/Labor-Information/Public-Works.

CONTACT INFORMATION

Contact the Labor Relations Division for any questions relating to Public Works projects by email at public.works@state.nm.us or call (505) 841-4400.

Type "B" - GENERAL BUILDING
Effective January 1, 2019

	Base Rate	Fringe Rate	Apprenticeship
Asbestos Worker - Heat & Frost Insulator	32.01	11.11	0.60
Boilermaker	34.97	27.35	0.60
Bricklayer/Blocklayer/ Stonemason	23.78	8.34	0.60
Carpenter/Lather	24.08	10.34	0.60
Cement Mason	20.71	9.78	0.60
Electricians-Outside Classifications			
Groundman	22.81	11.93	0.60
Equipment Operator	32.73	14.51	0.60
Lineman/Tech	38.51	16.02	0.60
Cable Splicer	42.36	17.01	0.60
Inside Classifications			
Wireman/Technician	31.55	10.75	0.60
Cable Splicer	34.71	10.84	0.60
Low-voltage Installer/Technician	28.95	7.52	0.60
Elevator Constructor	42.41	33.51	0.60
Elevator Constructor Helper	33.93	33.51	0.60
Glazier	20.25	5.05	0.60
Ironworker	26.50	15.56	0.60
Painter (Brush/Roller/Spray)	17.00	6.38	0.60
Paper Hanger	17.00	6.38	0.60
Drywall Finisher/Taper	24.08	10.34	0.60
Plasterer	22.42	8.16	0.60
Plumber/Pipefitter	29.45	11.52	0.60
Roofer	24.49	7.80	0.60
Sheetmetal Worker	30.28	16.60	0.60
Soft Floor Layer	20.71	9.78	0.60
Sprinkler Fitter	30.90	20.47	0.60
Tile Setter	23.52	8.10	0.60
Tile Setter Helper/Finisher	15.85	8.34	0.60
Laborers			
Group I	16.09	5.93	0.60
Group II	17.25	5.93	0.60
Group III	18.25	5.93	0.60
Group IV	20.25	5.93	0.60
Operators			
Group I	20.63	6.87	0.60
Group II	22.74	6.87	0.60
Group III	23.19	6.87	0.60
Group IV	23.62	6.87	0.60
Group V	23.80	6.87	0.60
Group VI	24.01	6.87	0.60
Group VII	24.12	6.87	0.60
Group VIII	27.08	6.87	0.60
Group IX	29.41	6.87	0.60
Group X	32.73	6.87	0.60
Truck Drivers			
Group I	14.76	6.25	0.60
Group II	15.00	6.25	0.60
Group III	15.50	6.25	0.60
Group IV	15.51	6.25	0.60
Group V	15.60	6.25	0.60
Group VI	15.75	6.25	0.60
Group VII	15.90	6.25	0.60
Group VIII	16.11	6.25	0.60
Group IX	16.32	6.25	0.60

NOTE: All Contractors are required to pay SUBSISTENCE, ZONE AND INCENTIVE PAY according to the particular trade. Details are located in a PDF attachment at WWW.DWS.STATE.NM.US. Search Labor Relations/Labor Information/Public Works/Prevailing Wage Rates.

PAYROLL STATEMENT OF COMPLIANCE

Wage Decision No .:_____

I, _____, _____do hereby state:
(Name of Signatory Party) (Title)

(1) that I pay or supervise the payment of the persons employed by:_____
(Contractor or Subcontractor)
on the_____
(Name of Project)
that during the payroll period commencing on the _____day of_____, 20__and ending the ____day of _____, 20__, all persons employed on said project have been paid the full weekly wages earned, that no deductions have been or will be made either directly or indirectly to or on behalf of said _____ from the full weekly wages earned by any
(Contractor or Subcontractor)
person, other than deductions permitted by law. Anyone found in violation of the NM Public Works Minimum Wage Act [13-4-11 to 13-4-17 NMSA 1978] could be subject to penalties and debarment.

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborer or mechanic conform with the work he performed.

(3) That any apprentice(s) employed in the above period are duly registered in a bona fide apprenticeship program registered with the State Apprenticeship agency recognized by the Bureau of Apprenticeship & Trng., US Dept. of Labor, or properly enrolled in a bona fide training program approved for application on public works construction projects by the appropriate state (SAC) and/or federal agency(ies) (BAT) if and as required by law & applicable federal regulation.

(4) **FRINGE BENEFITS**: ***(Please Spell Out Any/All Acronyms)***

__(a) ARE PAID TO APPROVED PLAN, FUND, OR PROGRAM in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above-referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate program for the benefit of such employees.

If paid to an approved plan, fund, or program, please fill out name of program w/fringe breakdown per hour below:

Name of Program Used for Fringe Benefits:				
Pension =	**Health/Welfare =**	**Holiday/Vac. =**	**Life Ins. =**	**Training* =**
(If additional space is needed for more programs/fringe breakdowns, please attach a separate page.)				

FRINGE BENEFITS:

1. Pension
2. Health/Welfare
3. Holiday/Vacation
4. Life Insurance
5. Training (not Apprenticeship) *****

FRINGE BREAKDOWN SAMPLE:

Fringe Benefit:	Amount:
401(K) Plan	$8.98/hr.
Vacation	$2.23/hr.

__(b) **Paid to Union Program** - If paid to a Union and fringe benefits differ from employee to employee, and/ or job contract, please provide fringe breakdown for each employee and attach copy of Union contract.

__(c) ARE PAID IN CASH, each laborer or mechanic listed in the above-referenced payroll has been paid as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract.

Section 13-1D-1 to Section 13-1D-8, NMSA 1978 provides for employers to agree to make contributions to approved apprentice & training programs in New Mexico in which the employer is a participant to the public works apprentice and training fund administered by the Public Works Bureau of the Labor & Industrial Division of the New Mexico State Department of Labor. Contributions shall be made in the same manner and in the same amount as apprentice and training contributions required pursuant to wage rate determinations made by the Labor & Industrial Division Director.

APPRENTICESHIP CONTRIBUTIONS: (Please check applicable blank)

__Check paid to: NM Public Works Apprenticeship & Training Fund - Public Works Bureau, Labor & Industrial Div.

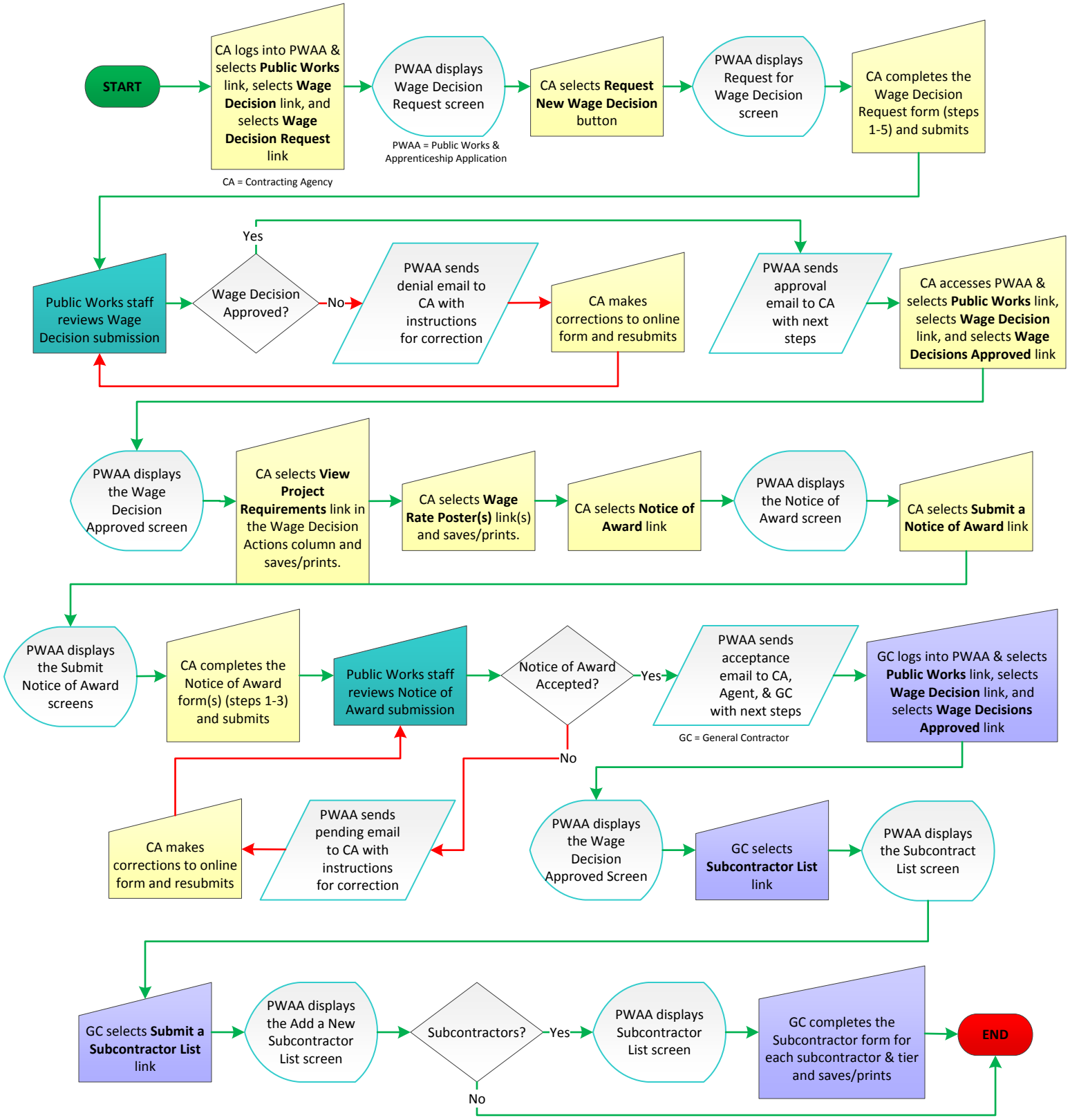
__Check paid to: _____ _____
(Name & address of approved Apprenticeship & Training Program (Program No.)

_____ _____ _____ _____
Print Name of Certifying Official: Signature of Certifying Official: Title & Phone No.: Date:

The willful falsification of any of the above statements may subject the contractor or subcontractor to civil or criminal prosecution. See Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

Revised April/2006

Public Works Wage Decision Request Workflow



REV.	DESCRIPTION	DATE	BY
0.1	Initial draft	12/09/2015	H. Jackson

WEEKLY PAYROLL

Revised Feb/2014

General Contractor Name:		Subcontractor Name:	
Address:	**Phone:**	Address:	**Phone:**

Payroll No.	Week Ending	Payroll Pmt. Date	Project Name	Project Location:	**Wage Decision No.**
		DAY AND DATE			

Employee Name & Address	Work Classification									TOTAL FOR PERIOD	Hourly Rate	Hrly. Rate Pd. In Fringe Benefits	Subsistence Pay	Gross Amt. Earned this Payroll	Gross Amt. All Projects	Deductions: With - holding	State Tax	Other: Union Dues	Net Amt. Pd.
			HOURS WORKED																
		OT																	
		S																	
		OT																	
		S																	
		OT																	
		S																	
		OT																	
		S																	
		OT																	
		S																	
		OT																	
		S																	
		OT																	
		S																	
		OT																	
		S																	
		OT																	
		S																	

SECTION 00 7344 – FEDERAL DAVIS-BACON WAGE DETERMINATION

PART 1 - GENERAL

1.1 Related Sections

A. Section 00 21 13 – Instructions to Owners
B. Section 00 73 10 – Special Conditions

1.2 Decision Number

A. Prevailing wage determination as published by the U. S. Department of Labor, General Decision Number: NM190019 04/05/2019, applicable to this contract follows.

END OF SECTION 00 7344

[U.S. Department of Labor General Decision Number: NM190019 04/05/2019 follows]

THIS PAGE INTENTIONALLY LEFT BLANK

General Decision Number: NM190045 04/05/2019 NM45

Superseded General Decision Number: NM20180059

State: New Mexico

Construction Type: Building
BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

County: Dona Ana County in New Mexico.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/04/2019
1	01/25/2019
2	04/05/2019

ASBE0076-008 01/01/2018

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 34.19	11.73

CARP1245-006 06/01/2018

	Rates	Fringes
Carpenter Excludes Drywall Hanging	$ 24.08	10.79

PLUM0412-015 04/01/2018

	Rates	Fringes
PIPEFITTER	$ 33.05	12.68

PLUM0412-018 04/01/2018

	Rates	Fringes
PLUMBER	$ 33.05	12.68

* SHEE0049-005 04/01/2019

	Rates	Fringes
Sheet Metal Worker (Includes HVAC Duct Installation)	$ 31.03	16.71

SUNM2016-002 09/26/2018

	Rates	Fringes
CARPENTER (Drywall Hanging Only)	$ 19.64	6.20
CEMENT MASON/CONCRETE FINISHER	$ 18.93	5.85
ELECTRICIAN	$ 29.26	8.98
IRONWORKER, STRUCTURAL	$ 28.00	8.21
LABORER: Common or General	$ 16.49	4.54
LABORER: Mason Tender - Cement/Concrete	$ 17.60	0.00

OPERATOR:
Backhoe/Excavator/Trackhoe.....$ 25.73 4.51

PAINTER (Brush and Roller).....$ 16.60 3.88

PAINTER: Spray.....$ 16.51 2.14

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in

the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

SECTION 02 4100 – DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes the following:
   1. Demolition and removal of portions of buildings.
   2. Demolition and removal of utilities and site improvements.
   3. Removal from the work site and designated construction dump areas shown of all material and debris resulting from demolition work.

1.2 RELATED WORK

A. Section 01 5000, GENERAL REQUIREMENTS; disconnecting utility services prior to demolition.

B. Section 31 2000, EARTH MOVING; Demolition and removal of driveways, walks, curbs, and exterior slabs-on-grade.

1.3 PROTECTION

A. Perform demolition in such manner as to eliminate hazards to persons and property; to minimize interference with use of adjacent occupied areas, utilities and structures or service interruption of such utilities; and to provide free passage to and from such adjacent occupied structures or areas. Comply with requirements of applicable OSHA regulations.

B. Provide safeguards, including warning signs, barricades, temporary fences, warning lights, and other similar construction aids that are required for protection of all personnel during demolition and removal operations.

C. Maintain erected fences, barricades, lights, signs and other similar items around exposed excavations until such excavations have been completely filled or temporarily covered in accordance with worker safety requirements and regulations.

D. Provide chutes from roof to carry debris to truck beds and govern flow of material into haul-off vehicle. Provide barricades and debris chutes to prevent admittance of vehicles and pedestrians into work zone and from falling debris.

E. Prevent spread of flying particles and dust; apply water to rubbish and debris as a dust suppressant to minimize airborne dust. Do not use water if it may result in creating hazardous or objectionable conditions such as, but not limited to ice, flooding, erosion, or runoff pollution. Vacuum and dust the work area daily.

F. No wall or part of wall, including storefront assemblies, shall be permitted to fall outwardly from the structure.

G. Provide and maintain fire extinguishers in work areas ready for immediate use. Instruct all possible users in use of fire extinguishers.

H. Keep fire hydrants accessible at all times by prohibiting debris from accumulating within a radius of 15 feet of fire hydrants.

I. Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the full extent of the work. The Contractor shall take

necessary precautions to avoid damage to existing items to remain in place, to be reused, or to salvage to the Owner. Any such damaged items shall be repaired or replaced as approved by the Architect prior to incorporating the items into the work or conveying them to the Owner.

J. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and temporary supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract. Do not overload existing structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal works. Repairs, reinforcement, or structural replacement must have Architect's approval prior to proceeding with the repairs, reinforcement, or structural replacement work.

1.4 UTILITY SERVICES:

A. Demolish and remove outside utility service lines shown to be removed or scheduled to be relocated or replaced after the new utility line is in service.

B. Remove exterior utility lines scheduled to be abandoned that will interfere with installation of new utility lines and new construction.

C. Remove existing utilities as indicated or uncovered by work operations and terminate them in a manner conforming to the requirements of the utility authority having jurisdiction covering the specific utility and as approved by the Owner. The Contractor shall notify the Architect and the Owner upon the discovery of utility lines not shown in the drawings prior to continuing with the Work.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 DEMOLITION

A. Completely demolish and remove building elements and portions of structure, including all appurtenances related or connected thereto, as noted below:
   1. As required for installation of new utility service lines.
   2. To full depth in an area within five (5) feet from the exterior face of the building walls.

B. Debris, including cmu masonry, concrete, stucco, metals and similar building materials shall become property of Contractor and shall be legally and properly disposed of by them on a daily basis, off the site of the Work to avoid accumulation at the site. Materials that cannot be removed daily shall be stored in areas specified by the Architect, with the Owner's approval. Contractor shall dispose of debris in compliance with applicable federal, state and local permitting, rules and regulations.

C. Remove and legally dispose of all materials, other than earth to remain as part of project work, from any trash dump areas allowed. Materials removed shall become property of the Contractor and shall be disposed of in compliance with applicable federal, state and local permitting, rules and regulations. All material in the indicated trash dump areas, including that above surrounding grade and extending to a depth of 2 feet below surrounding grade, shall be included in the Work. Material located more than 2 feet beneath the surface of the surrounding grade or materials assessed to be hazardous shall be managed as undiscovered conditions. The removal of suspected hazardous material shall be referred to the Architect for consideration by the Owner prior to proceeding with the Work.

3.2 CLEAN-UP

A. The Contractor shall leave the work site in a clean condition acceptable to the Architect and the Owner at the completion of the work of this section and after removal from the work site of all debris resulting from demolition operations. Clean-up shall include removal and disposal from the area within the limits of work all items and material not scheduled to remain the property of the Owner.

END OF SECTION 02 4100 - DEMOLITION

SECTION 03 3500 – CONCRETE SEALERS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes non-slip aggregate, concrete sealer as specified herein.

1.2 RELATED SECTIONS

A. Section 03 3000 - Cast-in-Place Concrete.

1.3 QUALITY ASSURANCE

A. Applicator's Qualifications: Company specializing in performing work of this Section with 3 years minimum experience.

B. Certifications:
1. Submit manufacturer's certificate stating proper amount of materials was ordered and shipped to Project.
2. Submit sealer manufacturer's certificate indicating review of Project conditions and intent to issue warranty.
   a. Submittal of certificate is required prior to application of materials.

C. Low Emitting Materials: The volatile organic compound (VOC) content of clear wood finishes, floor coatings, stains, sealers, and shellacs shall not exceed the limits defined in Rule #1113, "Architectural Coatings" of SCAQMD.

1.4 SUBMITTALS

A. Submit the following in accordance with Section 01 3300 "Submittal Procedures".
1. Product Data: Submit product data, including chemical properties and percentage of solids, for each product.
2. Manufacturer's Instructions: Submit application instructions, including surface preparation and application rates for each type of substrate, methods, and techniques.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of Section 01 6000 "Product Requirements".

B. Store products above 50 degrees F, but no greater than 85 degrees F, unless otherwise recommended by manufacturer.

1.6 PROJECT CONDITIONS

A. Do not apply materials when ambient or substrate surface temperatures are below 40 degrees F or higher than 100 degrees F.

B. Do not apply during inclement weather or when forecasted conditions will not permit compliance with manufacturer's printed instructions.

C. Provide mechanical ventilation during and after application to dissipate fumes if natural ventilation is insufficient.

1.7 SCHEDULING

A. Schedule application of products at proper time intervals after concrete finishing and curing operations.

B. Maintain proper moisture content of concrete before, during, and after application of specified products.

1.8 WARRANTY

A. Comply with provisions of Section 01 7800 “Closeout Submittals”.

B. Warrant applied sealer system to be free of defects related to material deficiency and workmanship for 5 years.

C. Warranty period begins at date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Provide materials, equipment, and personnel required to achieve specified finish.

2.2 NON-SLIP AGGREGATE

A. Dry Shake-On Non-Slip Aggregate:
1. Fused aluminum oxide grit or crushed emery or silica quartz, or blend thereof.
2. Factory-graded, rustproof and non-glazing.

B. Acceptable products are as follows:
1. Non-Slip - Euclid Chemical Company; Cleveland, OH.
2. Grip-It or Grip-It AO - L&M Construction Chemicals, Inc.; Omaha, NE.
3. Frictex NS - Sonneborn Building Products; USA
4. Other products as submitted and approved in accordance with Section 01 6200 “Product Options”.

2.3 SEALER

A. Solvent based solid color concrete sealer.
1. Opaque, waterproofing sealer formulated to bond with concrete surfaces.
2. Compatible with substrate and non-slip aggregate.
3. Color as selected by the Architect from the manufacturer’s full range of available colors.

B. Acceptable manufacturers for sealer are as follows:
1. Euclid Chemical Company, Cleveland, OH; (800) 321-7628.
2. L&M Construction Chemicals, Inc., Omaha, NE; (800) 839-9887.
3. W. R. Meadows, Inc., Hampshire, IL; (847) 214-2100.
4. Other products as submitted and approved in accordance with Section 01 6200 “Product Options”.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine conditions and proceed with work in accordance with Section 01 7300.

B. Verify that damage and defects in concrete surface have been repaired as specified in Section 03 3000 and accepted by Architect.

C. Verify that form ties have been broken off below concrete surface and plastic cones, fins and burrs have been removed.

D. Verify that form tie holes have been patched, unless specifically indicated to be left unfilled.

E. Verify that surfaces are clean, dry, dust free, and free of efflorescence, oil or other matter detrimental to sealer application.

F. Verify that joint sealant work in adjoining surfaces is complete prior to applications of sealers.
   1. Delay application until sealants have cured.

G. Ensure concrete has cured for time period required by manufacturer of product to be applied before application of products.

3.2 PREPARATION

A. Provide protection as necessary to protect adjacent materials and surfaces from dirt, dust, spillage, overspray, and physical damage.

B. Prevent migration of airborne materials by use of tarpaulins, wind breaks, and similar containment devices.

C. Maintain control of concrete chips, dust and debris.

D. Collect water to prevent damage to adjacent surfaces.

E. Remove loose particles, foreign matter, and oil by method which will not affect sealer application.

F. Prepare surfaces in accordance with manufacturer's directions.

3.3 APPLICATION

A. General: Provide finishes to match approved samples.

B. Non-slip Aggregate:
   1. After float finishing, and before starting trowel finish, uniformly spread 25 pounds of dampened non-slip aggregate per 100 square foot of surface.
      a. Tamp aggregate flush with surface but do not force below surface.

   2. After curing, lightly work surface with steel wire brush, or an abrasive stone, and water to expose non-slip aggregate.

C. Sealer:
   1. Apply sealer as recommended by the manufacturer to obtain penetration and full coverage.
   2. Do not allow flooding or puddling of material on surface.
   3. Do not dilute or alter material as packaged.
   4. Apply in number of coats as recommended by the manufacturer.

3.4 ADJUSTING AND CLEANING

A. Repair or replace adjacent Work which has been damaged by applications and installations of Work of this section.

B. Clean-up and remove debris daily.

C. Clean spillage, overspray, or drift from adjacent surfaces.
   1. Remove immediately in accordance with the manufacturer's instructions.

3.5 PROTECTION

A. Protect finished work in accordance with Section 01 7300 "Execution Requirements".

B. Protect finished concrete surfaces from damage by construction equipment, operations and from adverse weather conditions.

3.6 SCHEDULE

A. Provide specified materials at the following locations:
   1. Non-slip Aggregate: Non-slip aggregate or textured locations indicated on Drawings.
   2. Sealer: Sealed concrete locations indicated on Drawings.

END OF SECTION 03 3500 – CONCRETE SEALERS

SECTION 04 2000 – CONCRETE UNIT MASONRY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete masonry units.
B. Mortar and Grout.
C. Steel Reinforcement and Anchorage.
D. Flashing.
E. Lintels.
F. Masonry accessories.
G. Masonry-cell fill.

1.2 RELATED REQUIREMENTS

A. Section 05 5000 - Metal Fabrications: Loose steel lintels.

1.03 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures; American Concrete Institute International; 2009.

B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2005.

C. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.

D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

E. ASTM A580/A580M - Standard Specification for Stainless Steel Wire; 2008.

F. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2009b.

G. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2009a.

H. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.

I. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2010.

J. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction; 2009.

K. ASTM C27 - Standard Classification of Fireclay and High-Alumina Refractory Brick; 1998 (Reapproved 2008).

L. ASTM C34 - Standard Specification for Structural Clay Load Bearing-Wall Tile; 2010

M. ASTM C55 - Standard Specification for Concrete Brick; 2009.

N. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale); 2010.

O. ASTM C73 - Standard Specification for Calcium Silicate Brick (Sand-Lime Brick); 2010.

P. ASTM C90 - Standard Specification for Load bearing Concrete Masonry Units; 2011.

Q. ASTM C91 - Standard Specification for Masonry Cement; 2005.

R. ASTM C126 - Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units; 2010.

S. ASTM C129 - Standard Specification for Non-load bearing Concrete Masonry Units; 2006.

T. ASTM C140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2011.

U. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2004.

V. ASTM C150 - Standard Specification for Portland Cement; 2011

W. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.

X. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2010.

Y. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2010.

Z. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2007.

AA. ASTM C476 - Standard Specification for Grout for Masonry; 2010.

AB. ASTM C652 - Standard Specification for Hollow Brick (Hollow Masonry Units Made From Clay or Shale); 2010.

AC. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2010.

AD. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Meeting: Convene a pre-installation meeting one week before starting work of this section; require attendance by all relevant installers.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

C. Manufacturer's Certificate shall certify that masonry units meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.
   1. Maintain one copy of each document on project site.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

B. Handle and store ceramic glazed masonry units in protective cartons or trays. Do not remove from protective packaging until ready for installation.

PART 2 PRODUCTS

2.1 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Load-Bearing Units: ASTM C90, normal weight.
      a. Hollow block, as indicated.

2.2 MORTAR AND GROUT MATERIALS

A. Masonry Cement: ASTM C91, Type N.

B. Portland Cement: ASTM C150, Type I.
   1. Not more than 0.60 percent alkali.

C. Hydrated Lime: ASTM C207, Type S.

D. Mortar Aggregate: ASTM C144.

E. Grout Aggregate: ASTM C404.

F. Water: Clean and potable.

G. Accelerating Admixture: Nonchloride type for use in cold weather.

H. Moisture-Resistant Admixture: Water repellent compound designed to reduce capillarity.

2.3 REINFORCEMENT AND ANCHORAGE

A. Manufacturers of Joint Reinforcement and Anchors:
   1. Dur-O-Wal: www.dur-o-wal.com.
   2. Substitutions: See Section 01 6000 - Product Requirements.

B. Reinforcing Steel: ASTM A615/A615M Grade 60 (420) deformed billet bars;

C. Strap Anchors: Bent steel shapes configured as required for specific situations, 1-1/4 in. width, 0.105 in thick, lengths as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face, corrugated for embedment in masonry joint,

hot dip galvanized to ASTM A 153/A 153M, Class B.

D. Flexible Anchors: 2-piece anchors that permit differential movement between masonry and building frame, sized to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face.
   1. Concrete frame: Dovetail anchors of bent steel strap, nominal 1 inch width x 0.024 in thick, with trapezoidal wire ties 0.1875 inch thick, hot dip galvanized to ASTM A153 / A153M, Class B.
   2. Steel frame: Crimped wire anchors for welding to frame, 0.25 inch thick, with trapezoidal wire ties 0.1875 inch thick, hot dip galvanized to ASTM A153 / A153M, Class B.

E. Wall Ties: Corrugated formed sheet metal, 7/8 inch wide by 0.05 inch thick, hot dip galvanized to ASTM A 153/A 153M, Class B, sized to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face.

F. Two-Piece Wall Ties: Formed steel wire, 0.1875 inch thick, adjustable, eye and pintle type, hot dip galvanized to ASTM A 153/A 153M, Class B, sized to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face and to allow vertical adjustment of up to 1-1/4 in.

G. Masonry Veneer Anchors: 2-piece anchors that permit differential movement between masonry veneer and structural backup, hot dip galvanized to ASTM A 153/A 153M, Class B.
   1. Anchor plates: Not less than 0.075 inch thick, designed for fastening to structural backup through sheathing by two fasteners; provide design with legs that penetrate sheathing and insulation to provide positive anchorage.
   2. Wire ties: Manufacturer's standard shape, 0.1875 inch thick.
   3. Vertical adjustment: Not less than 3-1/2 inches.
   4. Seismic Feature: Provide lip, hook, or clip on end of wire ties to engage or enclose not less than one continuous horizontal joint reinforcement wire of 0.1483 inch diameter.

2.4 ACCESSORIES

A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.

B. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self-expanding; maximum lengths available.

C. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.

D. Building Paper: ASTM D226, Type I ("No.15") asphalt felt.

E. Nailing Strips: Softwood lumber, preservative treated; as specified in Section 06 1000.

F. Weeps: Polyethylene tubing.
   1. Manufacturers:
      a. Substitutions: See Section 01 6000 - Product Requirements.

G. Cavity Vents: Polyester mesh.

1. Manufacturers:
   a. Substitutions: See Section 01 6000 - Product Requirements.

H. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.5 MORTAR AND GROUT MIXES

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Masonry below grade and in contact with earth: Type S.
   2. Exterior, loadbearing masonry: Type S.
   3. Exterior, non-loadbearing masonry: Type S.
   4. Interior, loadbearing masonry: Type S.
   5. Interior, non-loadbearing masonry: Type N.

B. Colored Mortar: Proportion selected pigments and other ingredients to match Architect's sample, without exceeding manufacturer's recommended pigment-to-cement ratio.

C. Grout: ASTM C476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

D. Mixing: Use mechanical batch mixer and comply with referenced standards.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.2 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.3 COLD AND HOT WEATHER REQUIREMENTS

A. Comply with requirements of ACI 530/530.1/ERTA or applicable sections of the building code, whichever is more stringent.

3.4 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Running.

2. Mortar Joints: Concave.

3.5 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar and mortar smears as work progresses.

E. Interlock intersections and external corners, except for units laid in stack bond.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

H. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

I. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.

J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

K. Lay clay tile flue linings vertically, bedded in concrete block units. Extend above chimney cladding 8 inches . Trowel mortar smooth over chimney cladding and slope for positive drainage.

3.6 REINFORCEMENT AND ANCHORAGE - GENERAL

A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal reinforcement 48 inches on center in bond beam blocks.

B. Reinforce stack bonded unit joint corners and intersections with strap anchors 16 inches on center.

C. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 24 inches vertically.

3.7 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
   1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
   2. Remove or cover protrusions or sharp edges that could puncture flashings.
   3. Seal lapped ends and penetrations of flashing before covering with mortar.

B. Extend metal flashings through exterior face of masonry and turn down to form drip. Install

joint sealer below drip edge to prevent moisture migration under flashing.

C. Extend plastic, laminated, and EPDM flashings to within 1/4 inch of exterior face of masonry.

D. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.

3.9 GROUTED COMPONENTS

A. Lap splices minimum 24 bar diameters.

B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

C. Place and consolidate grout fill without displacing reinforcing.

D. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

3.10 CONTROL AND EXPANSION JOINTS

A. Do not continue horizontal joint reinforcement through control and expansion joints.

B. Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.

C. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

3.11 BUILT-IN WORK

A. As work progresses, install built-in metal door frames and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
   1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

D. Do not build into masonry construction organic materials that are subject to deterioration.

3.12 TOLERANCES

A. Maximum Variation from Alignment of Columns: 1/4 in.

B. Maximum Variation from Unit to Adjacent Unit: 1/16 in.

C. Maximum Variation from Plane of Wall: 1/4 in. in 10 ft. and 1/2 in. in 20 ft. or more.

D. Maximum Variation from Plumb: 1/4 in. per story non-cumulative; 1/2 in. in two stories or more.

E. Maximum Variation from Level Coursing: 1/8 in. in 3 ft. and 1/4 in. in 10 ft.; 1/2 in. in 30 ft.

F. Maximum Variation of Joint Thickness: 1/8 in. in 3 ft.

G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 in.

3.13 CUTTING AND FITTING

A. Cut and fit for chases. Coordinate with other sections of work to provide correct size, shape, and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.14 PARGING

A. Dampen masonry walls prior to parging.

B. Scarify each parging coat to ensure full bond to subsequent coat.

C. Parge masonry walls in two uniform coats of mortar to a total thickness of 3/4 inch.

D. Steel trowel surface smooth and flat with a maximum surface variation of 1/8 inch per foot.

E. Strike top edge of parging at 45 degrees.

3.15 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.

B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140 for conformance to requirements of this specification.

C. Mortar Tests: Test each type of mortar in accordance with ASTM C780, testing with same frequency as masonry samples.

3.16 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.17 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION 04 2000 – CONCRETE UNIT MASONRY

SECTION 05 5000 - METAL FABRICATIONS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following:
   1. Shop fabricated steel items.
   2. Related attachment hardware.

1.2 RELATED SECTIONS

A. Section 09 9100 – Painting

1.3 REFERENCES

A. ANSI A14.3: American National Standard for Ladders – Fixed - Safety Requirements.

B. ASTM A36/A36M: Standard Specification for Carbon Structural Steel.

C. ASTM A53/A53M: Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

D. ASTM A283/A283M: Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.

E. ASTM A307: Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

F. ASTM A500: Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

G. AWS A2.4: Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society.

H. AWS D1.1/D1.1M: Structural Welding Code - Steel; American Welding Society.

I. SSPC-Paint 15: Steel Joist Shop Primer; Society for Protective Coatings.

J. SSPC-SP 2: Hand Tool Cleaning; Society for Protective Coatings.

1.4 SUBMITTALS

A. Submit in accordance with Section 013300 - Submittal Procedures:

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
   1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Steel Sections: ASTM A 36/A 36M.

B. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing.

C. Plates: ASTM A 283.

D. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.

E. Bolts, Nuts and Washers: ASTM A307, plain.

F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

2.2 FABRICATED ITEMS

A. Ladders: Steel; in compliance with ANSI A14.3; with mounting brackets and attachments; prime paint finish.
   1. Side Rails: 3 x 1/4 inch members spaced at 20 inches apart.
   2. Rungs: one inch diameter steel pipe spaced 12 inches on center
   3. Space rungs 7 inches from wall surface.

B. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.
   1. 6 inch O.D. pipe size, unless noted otherwise.

C. Miscellaneous Light Steel Framing: As detailed; prime paint finish.
   1. Light steel framing, bracing, supports, clip angles, lintels, shelf angles, plates, etc., shall be of such shapes and sizes as indicated on the drawings or as required for the project condition and shall be provided with all necessary supports and reinforcing such as hangers, braces, struts, clip angles, anchors, bolts, nuts, welds, etc., as required to properly support and rigidly fasten and anchor in place to steel, concrete, masonry and all other connecting and adjoining work.
   2. All light steel framing steel shall be furnished and erected in accordance with the applicable requirements of the ”Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings” by the American Institute of Steel Construction and as specified herein.

D. Sleeves in Concrete Walls and Slabs
   1. Sleeves through concrete walls shall be of Schedule 40 steel pipe with I.D. 2 inches larger than O.D. of pipe or conduit (including any insulation) to be accommodated.
   2. Sleeves shall project one-half inch on each side of finished wall. Provide rectangular one-quarter inch steel plate collar at center, continuously welded to the perimeter of the sleeve, and 6 inches wider than the O.D.
   3. Slots in slabs shall be 12 gauge steel sheet, galvanized, of dimensions indicated, with strap anchors welded in place not more than 12 inches on center.

2.3 FABRICATION

A. Fit and shop assemble items in largest practical sections for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush and hairline. Ease exposed edges to small uniform radius.

D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts, unobtrusively located, consistent with design of component, except where specifically noted otherwise.

E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.4 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation from Plane: 1/16 inch in 48 inches.

2.5 FINISHES

A. Prime paint all steel items.
   1. Exceptions: Do not prime surfaces in direct contact with concrete or where field welding is required.

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

C. Clean surfaces of rust, scale, grease and foreign matter prior to finishing.

D. Prime Painting: One coat.

E. Powder coat color as selected by the Architect.

PART 3 – EXECUTION

3.1 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.2 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components indicated on shop drawings.

D. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Obtain the Architect’s approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasions and surfaces not shop primed, except surfaces to be in contact with concrete.

3.3 TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset from True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION 05 5000 - METAL FABRICATIONS

SECTION 06 1000 – ROUGH CARPENTRY

PART 1 – GENERAL

1.1 WORK INCLUDED

A. This section includes the following as specified herein and shown on the drawings:
   1. Lumber
   2. Plywood
   3. Wood Treatment
   4. Accessories

1.2 REFERENCES

A. APA PRP-108: Performance Standard and Policies for Structural Use Panels.

B. ASTM A153 / A153M: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

C. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials.

D. AWPA C2: Lumber, Timber, Bridge Ties and Mine Ties; Preservative Treatment by Pressure Processes; American Wood-Preservers' Association.

E. AWPA C20: Structural Lumber; Fire Retardant Treatment by Pressure Processes; American Wood-Preservers' Association.

F. AWPA C27: Plywood; Fire-Retardant Treatment by Pressure Processes; American Wood-Preservers' Association.

G. AWPA U1: Use Category System; User Specification for Treated Wood; American Wood-Preservers' Association.

H. PS 1: U.S. Product Standard for Construction and Industrial Plywood.

I. PS 20: American Softwood Lumber Standard; National Institute of Standards and Technology.

1.3 SUBMITTALS

A. Wood Treatment Data:
   1. Submit chemical treatment manufacturer's instructions for storing, handling, installing, and finishing of treated material.
   2. Preservative Treatment:
      a. For each type specified, include certification by treatment plant stating preservative solutions and pressure process used, net amount of preservative retained, and conformance with applicable standards.
      b. For water-borne preservatives, certify that moisture content of materials was reduced to maximum of 19 percent after treatment and prior to shipping to project site.

   3. Fire-Retardant Treatment:
      a. Include certification by treatment plan that treatment material complies with specified standards and governing authorities.
      b. Include materials test reports from qualified testing laboratory indicating and interpreting test results relative to compliance of fire-retardant treated wood products with requirements indicated.

1.4 QUALITY ASSURANCE

A. Lumber Standards:
   1. Comply with PS 20, WWPA Grading Rules and other grading rules as specified.
   2. Lumber fabricated from old growth timber is not permitted.

B. Plywood Standards:
   1. Comply with PS 1, "U.S. Product Standard for Construction and Industrial Plywood".
   2. Comply with APA "Performance Standard and Policies for Structural Use Panels", APA PRP-108.

C. Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency, except omit markings from surfaces to be exposed with transparent finish or without finish.

D. Low Emitting Materials: The volatile organic compound (VOC) content of wood glues and adhesives shall not exceed the limits defined in Rule #1168, "Adhesive and Sealant Applications" of SCAQMD.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Cover wood products to protect against moisture.

B. Support stacked products to prevent deformation and to allow air circulation.

C. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

PART 2 – PRODUCTS

2.1 LUMBER

A. Dimension lumber shall comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified.
      a. Provide lumber stamped with grade mark unless otherwise indicated.

B. Dimension lumber for concealed applications shall be as follows:
   1. Size: Nominal size as indicated on drawings, S4S.
   2. Moisture Content: S-dry or MC19.
   3. Grade: No. 2 or better.

C. Blocking, nailers, and supports shall be as follows:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard Grade or No. 3.

2.2 PLYWOOD

A. Flooring: Tongue and groove plywood floor desk, structural panels, minimum grade "underlayment" or "single floor."
   1. Thickness: 3/4 inch.

2. Follow all requirements for rated floor assembly; refer to spec section 01 4200 “UL listing references.”

B. Wall Covering: PSI, A-D plywood, exterior grade.
   1. Thickness: 3/4 inch.
   2. Flame spread index of 25 or less, and smoke development index of 450 or less when tested in accordance with ASTM E84.

C. Communications and Electrical Room Mounting Boards: PS1, A-D plywood.
   1. Thickness: 3/4 inch.
   2. Flame spread index of 25 or less, and smoke development index of 450 or less when tested in accordance with ASTM E84.

D. Other Applications:
   1. Plywood Concealed From View: PS 1, C-D plugged or better, exterior grade.

2.3 WOOD TREATMENT

A. Preservative Treatment:
   1. Where lumber or plywood is indicated as “Treated”, or is specified herein to be treated, comply with applicable requirements of AWPA Standard C2 for lumber and C9 for plywood.
      a. Mark each treated item with the AWPB or SPIB Quality Mark.
      b. Do not treat any wood to receive fire-retardant treatment.

   2. Pressure treatment for above ground items shall be water-borne preservatives complying with AWPB LP-2.
      a. After treatment, rack dry or kiln dry to a maximum moisture content of 15 percent.
      b. Creosote and asphaltic preservatives are not acceptable.

   3. Treat items indicated on drawings and the following:
      a. Wood cants, nailers, curbs, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
         1) Wood for nailers shall be No. 2 or better.
         2) Wood nailers for roofing shall be weather resistant to comply with roof manufacturer’s standards for “Wolmanized” or equal treatment.

      b. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
      c. Wood framing members less than 18 inches above grade.

B. Fire-Retardant Treatment:
   1. Where fire-retardant lumber or plywood is indicated, required by Code, or specified herein, comply with AWPA C20 Standard for Lumber and C27 Standard for Plywood.
   2. Fire-retardant chemicals shall achieve a flamespread rating of not more than 25 when tested in accordance with UL Test 723 or ASTM E84.
      a. Type A treatment for interior uses.
      b. Exterior Type for exterior uses.

   3. Rack dry or kiln dry treated items to a maximum moisture content of 15 percent.
   4. Provide UL label on each piece of fire-retardant treated lumber or plywood.

C. Complete fabrication of treated items prior to treatment, where possible.
   1. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment.
   2. Inspect each piece of lumber or plywood after drying and discard damaged or defective

pieces.

2.4 ACCESSORIES

A. Anchors and Fasteners: Hot-dipped galvanized steel per ASTM A153 / A153M for high humidity and preservative treated wood locations.
   1. Unfinished steel elsewhere.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use as accessory components, including blocking, bracing, and shims.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.2 BLOCKING, NAILERS, AND SUPPORTS

A. Provide blocking, nailers, and supports as indicated and as required to support fabrications, fixtures, specialty items, finishes, and trim.

B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs.

C. Where ceiling-mounting is indicated, provide blocking, nailers, and supports above ceiling.

D. Specifically provide blocking for the following:
   1. Wall brackets
   2. Handrails
   3. Wall paneling and trim
   4. Cabinets and shelf supports
   5. Windows, doors, and storefront openings
   6. Wall mounted door stops
   7. Joints of rigid wall coverings that occur between studs
   8. Visual display and marker boards
   9. Grab bars
   10. Towel and bath accessories
   11. Other blocking as indicated on Drawings

3.3 PLYWOOD

A. Flooring: Long edges shall be tongue and groove. Face grain of plywood or strength axis of panel shall be perpendicular to joists with joints staggered.
   1. Install to comply with the requirements for rated floor assembly; refer to spec section 01 4200 “UL listing references.”

B. Wall covering and Communications and Electrical Room Mounting Boards: Secure with edges over firm bearing, using screws to studs at edges and in field of board.
   1. At fire-rated walls, install plywood over wall board indicated as part of the fire-rated assembly.
   2. Where plywood is indicated as full floor-to-ceiling height, install with long edge parallel to

studs.

3. Install adjacent boards without gaps.

3.4 FIELD QUALITY CONTROL

A. Discard materials with defects that might impair quality of work and materials that are too small to use in performing work with minimum joints or optimum joint arrangement.

END OF SECTION 06 1000 – ROUGH CARPENTRY

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 06 2000 – FINISH CARPENTRY

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contactor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following types of finish carpentry:
   1. Wood trim
   2. Shelving

1.2 RELATED SECTIONS

A. Section 099100 – Painting

1.3 QUALITY ASSURANCE

A. Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency, except omit markings from surfaces to be exposed with transparent finish or without finish.

B. Low Emitting Materials: The volatile organic compound (VOC) content of wood glues and adhesives shall not exceed the limits defined in Rule #1168, “Adhesive and Sealant Applications” of SCAQMD.

1.4 REFERENCES

A. Architectural Woodwork Institute: AWI Quality Standards.

B. PS 51: U.S. Product Standard for Hardwood and Decorative Plywood.

C. PS 58: U.S. Product Standard for Basic Hardwood.

1.5 SUBMITTALS

A. Wood Trim: Submit samples for each species and cut or pattern, both unfinished and finished.
   1. Size: 2’-0” long x full board or molding width.

B. Shelving: Submit manufacturer’s product data and installation instructions for shelving system.
   1. Provide full size samples of shelving standard, bracket, and plastic laminate shelving.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver finish carpentry materials until wet work, painting, and similar operations have been completed in installation areas.

B. Protect finish carpentry materials during transit, delivery, storage, and handling to prevent damage, soiling, and deterioration.

C. Store materials off the floor, fully protected from damage.

1.7 PROJECT CONDITIONS

A. Do not deliver nor install finish carpentry until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 – PRODUCTS

2.1 WOOD TRIM

A. Provide materials which meet or exceed the requirements of the AWI Quality Standards.
   1. Furnish lumber in longest practical lengths.
   2. Wood trim size and profile shall be as indicated on drawings.
      a. If sizes and profiles are not shown, Architect will make selections from manufacturer's standard sizes and profiles.

B. Provide solid lumber, kiln-dried to a moisture content from time of manufacture until time of installation not greater than the values required by the applicable grading rules of the respective grading and inspecting agency for the species indicated.

C. Painted Finish: Solid stock hardwood for exposed painted finish shall be plain sawn / sliced custom grade natural birch or white poplar.

D. Transparent Finish: Solid stock hardwood for exposed transparent finish shall be premium grade select maple or red oak.

E. Provide nails, screws, and other anchoring devices of the type, size, material, and finish required for the application and to provide secure attachment.
   1. Where finish carpentry is exposed on exterior or in areas of high relative humidity, provide anchors and fasteners with a hot-dipped zinc coating complying with ASTM A153.

2.2 SHELVING

A. Shelf Standards: Heavy duty, 16 gauge steel channel standard, K&V 82 as manufactured by Knape and Vogt.
   1. Standards shall have slots to receive shelf brackets.
   2. Standards shall be predrilled for screw attachment.
   3. Standards shall be manufacturer's standard length suitable for number of shelves and installation height required.

B. Shelf Brackets: Heavy duty, 14 gauge 'L' shaped bracket, K&V 182 as manufactured by Knape and Vogt.
   1. Brackets shall have tabs to fit slots in shelf standards.

C. Finish: Shelving standards and brackets shall have a factory-applied epoxy coating.
   1. Color shall be as selected by the Architect from the manufacturer's standard colors.

D. Plywood Shelving: 1 inch thick finish grade plywood shelves with ½ inch x 1 inch hardwood edge.
   1. Provide shelf depth and number of shelves as indicated on drawings.

E. Plastic Laminate Shelving: 5/8 inch thick heavy duty particleboard with square corners as manufactured by Knape and Vogt.
   1. Provide shelf depth and number of shelves as indicated on drawings.
   2. Shelving color shall be as selected by the Architect from the manufacturer's

standard colors.

F. Shelf Fasteners: Steel shelf fastener to secure shelf to bracket as manufactured by Knape and Vogt.

G. Anchors: Provide screws and other anchoring devices as recommended by the manufacturer for secure attachment.

PART 3 – EXECUTION

3.1 PREPARATION

A. Condition wood materials to average prevailing humidity conditions in installation areas prior to installing.

B. Backprime lumber to receive painted finish which is exposed at the exterior or exposed to moisture and high relative humidity at the interior.

3.2 INSTALLATION

A. Wood Trim:
   1. Discard material which is unsound, warped, bowed, twisted, not adequately seasoned, too small to fabricate work with minimum number of joints or optimum jointing arrangements, or which is otherwise defective.
   2. Scribe and cut boards to fit adjoining work, and refinish cut surfaces.
   3. Install wood trim plumb, level, true and straight with no distortions.
      a. Shim as required using concealed shims.

   4. Install wood trim with minimum number of joints possible, using full-length pieces to the greatest extent possible.
      a. Stagger joints in adjacent and related members.
      b. Miter at corners and cope at returns to produce tight fitting joints with full surface contact throughout length of joint.
      c. Use scarf joints for end-to-end joints.

   5. Anchor finish carpentry with countersunk, concealed fasteners and blind nailing.
   6. Use fine finishing nail for exposed nailing, countersunk and filled flush with finished surface.

B. Shelving:
   1. Install standards, brackets, and shelving in accordance with the manufacturer's written installation instructions.
   2. Start standards above the finish floor as indicated on drawings, or if not indicated as per the manufacturer's recommendations.
   3. Space standards as indicated on drawings, but never more than per the manufacturer's recommendations.

3.3 ADJUSTING AND CLEANING

A. Repair or replace damaged and defective finish carpentry to eliminate functional and visual defects.

B. Protect completed work to insure finish carpentry will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 06 2000 – FINISH CARPENTRY

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 06 4000 - ARCHITECTURAL WOODWORK

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following types of architectural woodwork:
   1. Plastic laminate cabinets.
   2. Plastic laminate countertops.
   3. Solid surfacing countertops.
   4. Cabinet hardware.

C. Architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing wood work items, unless concealed within other construction before woodwork installation.

1.2 RELATED SECTIONS

A. Section 079200 – Joint Sealants.

1.3 SUBMITTALS

A. Product Data: Submit for each type of product indicated including finishing materials and processes, cabinet hardware, and accessories.

B. Shop Drawings: Submit dimensioned plans, elevations, and large-scale details. Indicate the location of each item and attachment devices.
   1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
   2. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.

C. Samples: Provide manufacturer's standard size samples for the Architect's selection from manufacturer's full range of colors, patterns, and surface finishes. Upon selection provide actual samples for the Architect's final approval as follows:
   1. Plastic-laminate: 8 inches by 10 inches, for each type, color, pattern, and surface finish.

D. Product Certificates: Signed by manufacturer of woodwork certifying that products furnished comply with specified requirements.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed architectural woodwork similar in material, design, and extent to that indicated for this project and whose work has resulted in construction with a record of successful in-service performance.

B. Fabricator Qualifications: A firm experienced in producing architectural woodwork similar to that indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Quality Standard: Unless otherwise indicated, comply with AWI/AWMAC (QSI) "Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural

Woodwork Manufacturers Association of Canada"; 2005, 8th Edition, Version 2.0, for grades of interior architectural woodwork, construction, finishes, and other requirements.

D. Qualification Data: When requested by the Architect provide information to demonstrate capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of owners and architects, and other information as requested.

E. Low Emitting Materials: The volatile organic compound (VOC) content of wood glues and adhesives shall not exceed the limits defined in Rule #1168, “Adhesive and Sealant Applications” of SCAQMD.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas.

B. Do not deliver nor install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

C. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with the requirements specified herein.

1.6 PROJECT CONDITIONS

A. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
   1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.
   2. Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating woodwork without field measurements.
      a. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other sections to ensure that architectural woodwork can be supported and installed as required.

B. Coordinate plumbing fixtures, electrical devices, and other work which is set into and around architectural woodwork.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, plastic laminate manufacturers and products which may be incorporated in the work include the following:
   1. Formica Corporation – Cincinnati, OH; (800) 367-6422
   2. Nevamar – Shelton, CT; (800) 638-4380
   3. Wilsonart International – Temple, TX; (800) 433-3222

4. Other manufacturers as submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 MATERIALS

A. Provide materials that comply with requirements of the AWI / AWMAC (QSI) quality standard for each type of woodwork and quality grade specified.

B. Wood products shall comply with the following:
   1. Medium-Density Fiberboard: ANSI A208.2, Grade MD.
   2. Particleboard: ANSI A208.1, Grade M-2, no added urea formaldehyde.
   3. Softwood Plywood: DOC PS 1, Medium Density Overlay.
   4. Hardwood Plywood and Face Veneers: HPVA HP-1.

C. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.
   1. Adhesive for bonding plastic laminate shall be un-pigmented contact cement.
   2. Adhesive for bonding edges shall be hot-melt adhesive.

2.3 PLASTIC LAMINATE CABINETS

A. Quality Standard: Comply with AWI / AWMAC (QSI) Section 400 requirements for laminate cabinets.

B. Grade: All woodwork is Custom grade except woodwork with directional laminate or wood veneer faces. In these cases, grain matching of the casework faces will be "Premium Grade", and all other details will remain Custom grade.

C. AWI Type of Cabinet Construction: Flush overlay.

D. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
   1. Horizontal surfaces other than tops: HGS.
   2. Postformed Surfaces: HGP.
   3. Vertical Surfaces: HGS.
   4. Cabinet body edges: 1 mm thick edging.
   5. Doors and drawers: 3 mm thick vinyl edgebanding.
   6. Shelves: Self edge, unless noted otherwise on drawings.

E. Materials for semi-exposed surfaces shall be as follows:
   1. Surfaces other than drawer bodies: High-pressure decorative laminate, Grade VGS.

F. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces that match Architect’s selections.

G. Provide hardboard above compartments and drawers, unless located directly under tops.

2.4 PLASTIC LAMINATE COUNTERTOPS

A. Quality Standard: Comply with AWI Section 400 requirements for high-pressure decorative laminate countertops.

B. Grade: Custom.

C. High-Pressure Decorative Laminate Grade: HGS securely bonded with resin waterproof glue.

D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces that match Architect's selections.

E. Grain Direction (if applicable): Parallel to cabinet fronts. All faces to run in one direction.

F. Edge Treatment: Same as laminate cladding on horizontal surfaces or hardwood edging as indicated on the drawings.

G. Core Material at Sinks: ¾ inch marine grade plywood.

2.5 CABINET HARDWARE AND ACCESSORIES

A. Provide cabinet hardware and accessory materials associated with architectural woodwork.

B. Cabinet hinges: Concealed when door is closed, self-closing, 175 degree opening, suitable for overlap cabinet doors.

C. Drawer System: Integral drawer slide and drawer side panel, equal to "Metabox", Medium Side (86mm) with full drawer extension, as manufactured by' Julius Blum, Inc.' Provide minimum 18 inch (450mm) drawer length for 24 inch deep cabinets and above.
   1. Alternate Manufacturer: 'Grass America Drawer Slides', Series 6036,100-Pound Unigrass, 85m High Side. Provide minimum 470mm drawer length for 24 inch deep cabinets and above.

D. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.

E. Catches: Magnetic catches, BHMA A156.9, B03141.

F. Door Locks: BHMA A156.11, E07121.

G. Drawer Locks: BHMA A156.11, E07041.

H. Grommets: Diameter as field conditions requires; color as selected by the Architect from the manufacturer's full range.

I. Exposed Hardware Finishes: For all exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
   1. Satin Stainless Steel: BHMA 630.

2.6 CABINET FABRICATION

A. Cabinet Bodies: Flush overlay construction with ¼ inch to 5/16 inch radiused corners on doors and drawers. Construction shall be in accordance with approved manufacturers' standard specifications to ensure stability and prevent racking when fully loaded.

B. Bodies of base cabinets shall be fabricated as follows:
   1. Bottom and sides shall be made of ¾ inch industrial particle board, 45-47 lb. density, face side laminated with 8 to 9 mil white melamine resin-saturated overlay and the non-exposed side laminated with a phenolic backing sheet for balanced construction.
   2. The back panel shall be made of ¼ inch, 45-47 lb. density industrial particle board with 8-9 mil white melamine resin-saturated overlay on the face side and the non-exposed side with a sealer for balanced construction.
   3. Top of the base cabinets and below the top set of drawers shall be fully framed in wood or a full sheet of 3/8 inch particle board sub top may be used.
   4. Back panels shall be full bound; captured in grooves on cabinet sides, top, and bottom and secured with staples and a hot weld glue around entire back perimeter.

5. Sides, top and bottom shall be fastened securely in accordance with approved manufacturers standard specifications to ensure stability and prevent racking when fully loaded.
6. Top of base cabinet and between top drawers shall consist of wood frame fastened to the body in accordance with approved manufacturers standard specifications.

C. Bodies of upper and/or full height cases shall be fabricated as follows:
1. These units shall be made of similar materials and construction as described for “Bodies of Base Cabinets” except the top member shall be solid ¾ inch, 45-47 lb. density industrial particle board laminated with 8 to 9 mil with melamine resin-saturated overlay rather than a wood frame.
2. On wall units, a 3/8 inch x 2-1/2 inch hanging filler strip shall be screwed and glued to the top and bottom of the cabinet.
3. On full-height cabinets, a 3/8 inch x 2-1/2 inch fill strip shall be screwed and glued to the top of the cabinet.

D. Drawers shall be fabricated as follows:
1. Construct drawers using the “Blum Metabox System” Drawer backs and bottoms shall be made of ¾ inch particle board with a white melamine finish. Metabox system shall be white.
a. All exposed edges of doors and drawers shall have vinyl edge banding.

E. Shelves and partitions shall be fabricated as follows:
1. Standard shelves and partitions shall be ¾ inch industrial particle board, 45-47 lb. density laminated both sides with 8 to 9 mil white melamine resin saturated overlay.
a. Shelves 36 inches long shall be 1 inch thick.
b. Front and sides shall be edged with "T" edge.

2. Adjustable shelves shall be installed on recessed KV-255 standards and KV-256 brackets or LH heavy duty nylon or metal self supports with drilled holes at 2 inches on center.

F. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

G. Sand fire-retardant treated wood lightly to remove raised grain on exposed surfaces before fabrication.

H. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
1. Corners of cabinets and edges of solid-wood (lumber) members 3/4 Inch thick or less: 1/16 inch.
2. Edges of rails and similar members more than 3/4 Inch thick: 1/8 inch.

I. Complete fabrication, including assembly, finishing, and hardware application to maximum extent possible before shipment to project site.
1. Disassemble components only as necessary for shipment and installation.
2. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

J. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items.
1. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings.
2. Sand edges of cutouts to remove splinters and burrs.

3. Seal edges of openings in countertops with a coat of varnish.
4. Install stainless steel sink rim.

2.7 INSTALLATION MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage.
   1. Provide nonferrous metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance.
   2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Prior to installation, examine shop-fabricated work for completion including removal of packing and backpriming.

3.2 PREPARATION

A. Prior to installation, condition woodwork to average prevailing humidity conditions in installation areas.

3.3 INSTALLATION

A. Install woodwork in accordance with AWI Section 1700 for the same grade specified herein for each type of woodwork.

B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

C. Scribe and cut woodwork to fit adjoining work. Refinish cut surfaces and repair damaged finish at cuts.

D. Fire Retardant Treated Wood: Handle, store, and install fire retardant treated wood to comply with recommendations of chemical treatment manufacturer, including those for adhesives used to install woodwork.

E. Attach woodwork to anchors or blocking built in or directly attached to substrates.
   1. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation.
   2. Use fine finishing nails or finishing screws for exposed fastening only when absolutely necessary and only after receiving approval of the Architect.

F. Cabinets:
   1. Install cabinets with no more than 1/8 inch in 96 inches sag, bow, or other variation from a straight line.
   2. Maintain veneer sequence matching of cabinets with transparent finish.
   3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches on center with No. 10 wafer-head screws sized for 1-inch penetration into wood blocking.
   4. Install without distortion so doors and drawers fit openings properly and are accurately

aligned.
5. Complete installation of hardware and accessory items as indicated.
6. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.

G. Countertops:
1. Set plumb and level and align adjacent countertops in same plane.
2. Install with hairline joints.
a. Fill joints between countertops and adjacent construction with joint sealant, finish flush and smooth.

3. Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
4. Secure backsplashes to tops with concealed fastening and to walls with adhesive.
5. Caulk space between backsplash and wall with joint sealant.
6. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

H. Complete work to the extent not completed at shop or before installation of woodwork.
1. Fill nail holes with matching filler where exposed.
2. Apply specified finish coats, including stains and paste fillers, to exposed surfaces where only sealer/prime coats were applied in shop.

3.4 TOLERANCES

A. Maximum variation from level and plumb: 1/8 inch in 96 inches, noncumulative.

B. Maximum variation in plane between adjacent pieces at joint: Plus or minus 1/16 inch.

3.5 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects. Where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06 4000 - ARCHITECTURAL WOODWORK

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 07 2100 – INSULATION

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following type of insulation as specified herein and shown on the drawings:
   1. Rigid board insulation
   2. Thermal batt Insulation
   3. Sound attenuation batt insulation
   4. Accessories

1.2 RELATED SECTIONS

A. Section 079200 – Joint Sealants

B. Section 092216 – Non Structural Metal Framing

C. Section 092900 – Gypsum Board

1.3 REFERENCES

A. ASTM C 272: Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.

B. ASTM C 423: Standard Test Method for Sound Absorption Coefficient by the Reverberation Room Method.

C. ASTM C 518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

D. ASTM C 578: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

E. ASTM C 665: Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

F. ASTM D 1621: Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

G. ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials.

H. ASTM E 96: Standard Test Methods for Water Vapor Transmission of Materials.

I. ASTM E 119: Standard Test Methods for Fire Tests of Building Constructions and Materials.

J. ASTM E 136: Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg C.

K. ASTM E 331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference.

L. ASTM E 2178: Standard Test Method for Air Permeance of Building Materials.

M. NFPA 285: Standard Fire Method for Evaluation of Fire Propagation Characteristics of Exterior

Non Load Bearing Wall Assemblies Containing Combustible Components.

1.4 SUBMITTALS

A. Submit the following in accordance with Section 013300 “Submittal Procedures”:
   1. Manufacturer’s product data including characteristics, performance criteria, product limitations, and installation instructions.
   2. Manufacturer's Certificate certifying that products meet or exceed the specified requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in the manufacturer’s unopened and undamaged packaging and bundles, fully identified with the manufacturer’s name and product name.

B. Store and protect materials in accordance with the manufacturer’s written instructions to prevent damage, contamination, exposure, and deterioration.
   1. Store with packaging and labels intact and legible.
   2. For batt and fibrous materials that are subject to wetting and water absorption, store in a sheltered and ventilated location to protect the materials from moisture and soiling.

C. Exercise care to avoid damage during unloading, storing, and installation.
   1. Damaged or deteriorated material shall be removed from the job site.

1.6 PROJECT CONDITIONS

A. Do not install insulation or adhesives when temperature or weather conditions are detrimental to successful installation as set forth by the product manufacturer.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Dow Chemical Company – USA; www.dow.com
   2. Johns Manville – Denver, CO; (303) 978-2000
   3. Owens Corning – USA; (800) 438-7465
   4. Other manufacturers as submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 RIGID BOARD INSULATION

A. Extruded Polystyrene Board Insulation:
   1. Type: Type IV complying with ASTM C578.
   2. Compressive Strength: 25 psi.
   3. Thermal Resistance: R 5.0 per inch of thickness with 90 percent lifetime limited warranty on thermal resistance.
   4. Water Absorption: Maximum 0.10 percent by volume in accordance with ASTM C272.
   5. Surface Burning Characteristics in accordance with ASTM E84:
      a. Flame spread less than 25.
      b. Smoke developed less than 450.

   6. Board Thickness: As follows unless otherwise indicated on drawings.
      a. 1 inch at foundation perimeter, Unless Otherwise Noted (U.O.N.)

   7. Board Size: 24 inch x 96; 48 inch x 96 inch as conditions allow.
   8. Edge Condition:
      a. Tongue and groove edge boards for horizontal installations.

b. Square edge boards for vertical installations.

2.3 THERMAL BATT INSULATION

A. Fiberglass Batt Insulation:
   1. Type: Type I batt complying with ASTM C665.
      a. Facing: Unfaced.

   2. Thickness: 6-1/4 inches (R-19) unless otherwise noted.
      a. Full width batt for use with steel studs spaced 16 inches on center, or other spacing as required.
      b. Use maximum possible lengths.

   3. Thermal Resistance: R-19 unless otherwise noted, in accordance with ASTM C518.
   4. Surface Burning Characteristics:
      a. Maximum flame spread: 10 when tested in accordance with ASTM E84.
      b. Maximum smoke developed: 10 when tested in accordance with ASTM E84.

   5. Combustion Characteristics: Unfaced insulation passes ASTM E136.
   6. Fire Resistance Rating: Passes ASTM E119 as part of a complete fire tested wall assembly.
   7. Dimensional Stability: Linear shrinkage less than 0.1 percent.

2.4 SOUND ATTENUATION BATT INSULATION

A. Fiberglass Acoustical Batt Insulation:
   1. Type: Type I batt complying with ASTM C 665.
      a. Facing: Unfaced.
   2. Thickness: 3-1/2 inches.
      a. Full width batt for use with steel studs spaced 16 inches on center, or other spacing as required.
      b. Use maximum possible lengths.

   3. Surface Burning Characteristics:
      a. Maximum flame spread: 10 when tested in accordance with ASTM E84.
      b. Maximum smoke developed: 10 when tested in accordance with ASTM E84.

   4. Combustion Characteristics: Passes ASTM E136.
   5. Fire Resistance Ratings: Passes ASTM E119 as part of a complete fire tested wall assembly.
   6. Dimensional Stability: Linear shrinkage less than 0.1 percent.

2.5 ACCESSORIES

A. Fasteners: Preassembled screw/stress plate fasteners, type and length as recommended by the insulation manufacturer for securing extruded polystyrene insulation board.

B. Joint Sealing Tape: Pressure sensitive, self adhering, acrylic adhesive joint sealing tape complying with AAMA 711 and the following:
   1. Recommended by the insulation manufacturer for sealing the joints of extruded polystyrene insulation board.
   2. Peel Adhesion Strength: Compliant with ICC-ES AC 148 and AAMA 711.
   3. Water Resistance and Joint Sealing: Compliant with ICC-ES AC71.
   4. Air Permeance: Air permeance less than or equal to 0.02 L/s/m2 tested in accordance with ASTM E2178.
   5. Service Temperature: Service temperature range shall be at least 0 degrees F to 120 degrees F maximum.
   6. Width: 3-1/2 inches minimum.

C. Adhesive: Commercial grade construction adhesive compatible with polystyrene or foamed plastics for adhering rigid board insulation.

D. Wires and Metal Straps: Heavy gauge wire and punched metal straps as recommended by the insulation manufacturer to supplement friction fit batt insulation.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify that steel wall studs, opening framing, and other framing support members and anchorages have been installed.

B. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

C. Verify mechanical and electrical services within walls have been installed, tested and inspected.

D. Do not proceed with work of this section until unsatisfactory conditions have been corrected.

3.2 RIGID BOARD INSULATION INSTALLATION AT FOUNDATION PERIMETER

A. Prior to backfilling, install extruded polystyrene (XPS) insulation boards to the exterior of the foundation wall in accordance with the manufacturer's written installation instructions.
   1. Install full height on the foundation wall starting from the top of the footing.
   2. Install elsewhere as required to complete thermal barrier at building perimeter.

B. Install insulation with long edges horizontal, edges tightly butted, and vertical joints staggered.
   1. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

C. Adhere a 12 inch wide strip of polyethylene sheet over construction, control, and expansion joints with double beads of adhesive each side of joint.
   1. Extend sheet full height of joint.
   2. Extend boards over expansion joints, unbonded to foundation on one side of joint.

D. Secure insulation with construction adhesive compatible with polystyrene or foamed plastics.
   1. Apply adhesive in accordance with the adhesive manufacturer's written application instructions.

E. Seal joints and openings with joint sealing tape in accordance with the manufacturer's recommendations.

F. Backfill carefully to avoid damage to insulation boards.

3.4 BATT INSULATION INSTALLATION

A. Thermal Batt Insulation:
   1. Fluff insulation to full thickness for specified R-value just prior to installation.
   2. Install fiberglass batt insulation in accordance with the manufacturer's written installation instructions.
   3. Tightly friction fit full width batt insulation to fill the interior of the cavities between studs and to completely fill the voids inside the steel stud flanges.
      a. Supplement with wires or metal straps installed every 2 feet on center starting 4 feet above the floor.
   4. Fit batt insulation tightly into wall steel stud cavity spaces and framing voids to create a

continuous layer without gaps.
   a. Trim to fill spaces and voids neatly.
   b. Do not compress insulation.

5. Within exterior wall framing, install insulation between pipes, mechanical services, electrical boxes, and backside of sheathing.
   a. Cut or split insulation material as required to fit around wiring and plumbing.

B. Sound Attenuation Batt Insulation:
   1. Install sound batt insulation in accordance with the manufacturer's written installation instructions.
      a. Install sound batt insulation in partitions indicated on Drawings.
      b. Extend sound batt insulation above ceilings to roof structure.

   2. Tightly friction fit full width batt insulation to fill the interior of the cavities between studs and to completely fill the voids inside the steel stud flanges.
      a. Supplement with wires or metal straps installed every 2 feet on center starting 4 feet above the floor.

   3. Place sound batt insulation tight within spaces, around openings, behind and around electrical and mechanical items.
   4. Do not install unfaced acoustical insulation such that it is exposed in mechanical plenums.
      a. Where acoustical insulation is indicated to be installed in exposed locations of mechanical plenums, install scrim reinforced foil faced insulation as a barrier for sound transmission.

   5. Install acoustical sealant around penetrations and at partition perimeter in accordance with Section 07 9200 "Joint Sealants".

3.5 PROTECTION

A. Protect insulation from damage due to weather and physical abuse until protected by permanent construction.

END OF SECTION 07 2100 – INSULATION

SECTION 07 5400 – THERMOPLASTIC MEMBRANE ROOFING

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes a single ply, fully adhered, thermoplastic membrane roofing system over decking and includes the following:
   1. Insulation.
   2. Cover Board.
   3. Roofing Membrane.
   4. Accessories.

1.2 RELATED SECTIONS

A. Section 00 6100 – Rough Carpentry

B. Section 07 6200 – Sheet Metal Flashing and Trim

1.3 QUALITY ASSURANCE

A. Single Source: Components of roof system including rigid insulation, membrane, flashings, fasteners, and accessories shall be provided by a single manufacturer and shall be products of that manufacturer or specifically approved by manufacturer for installation as part of roof system.

B. Manufacturer Qualifications: Manufacturer shall be manufacturer of existing warranted roof system to maintain consistency in materials, assemblies, and warranties.

C. Installer Qualifications: Installer shall be original installer of existing warranted roof system or installer certified by the manufacturer to modify existing warranted roof system.

D. Inspections: The Manufacturer of the roofing system shall attend the roof pre-installation conference to accept the conditions of the work and shall perform interim inspections during installation.
   1. After the roof installation is complete, the Manufacturer's technical representative shall inspect the work and inform (by written report) the Architect, Contractor, and Installer of defective / incomplete work to be remedied.
   2. Those areas indicated shall be corrected to the full satisfaction of the Architect and Manufacturer.
   3. The Manufacturer shall submit written acceptance of the project to the Architect indicating the roofing system has been installed according to the Manufacturer's published specifications and details.
      a. Acceptance shall include issuance of the roofing warranty.

1.4 REFERENCES

A. ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

B. ASTM C1371: Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.

C. ASTM C1549: Standard Test Method for Determination of Solar Reflectance Near Ambient

Temperature Using a Portable Solar Reflectometer.

D. ASTM D751: Standard Test Methods for Coated Fabrics.

E. ASTM D6878: Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing.

F. FMDS 1-28: Wind Design; Factory Mutual Research Corporation.

G. NRCA ML104: The NRCA Roofing and Waterproofing Manual; National Roofing Contractors Association.

H. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Architectural Sheet Metal Manual.

I. Underwriters Laboratories (UL): Roofing Systems and Materials Guide.

1.5 SUBMITTALS

A. Provide submittals in accordance with Section 01 3300 “Submittal Procedures”.
   1. Product Data: Provide data indicating membrane materials, flashing materials, insulation, surfacing, and fasteners.
   2. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
   3. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, setting plan for tapered insulation, and expansion joint locations.
   4. Samples: Submit 3 samples, 12 inches x 12 inches in size, illustrating roof membrane seam.
   5. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
   6. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, and supplementary instructions given.
   7. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.

B. Store products in weather protected environment, clear of ground and moisture.

C. Protect foam insulation from direct exposure to sunlight.

1.7 COORDINATION

A. Pre-installation Meeting: Convene one week before starting work of this section.

B. Review preparation and installation procedures and coordinating and scheduling required with related work, including, but not limited to:
   1. Weather conditions forecast.
   2. Preparation of substrate and penetrations through roof.
   3. Availability of roofing materials.
   4. Coordination with installation of flashing.
   5. Protection of installed items and finishes.

1.8 WARRANTY

A. Refer to Section 01 7800 “Closeout Submittals” for additional information for submitting warranties.

B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind, hail or other natural causes.
   1. Warranty Term: 20 years total.
      a. Total System includes insulation, recovery board, membrane, flashings, fasteners, plates, adhesives, and sealants.

   2. For repair and replacement include costs of both material and labor in warranty.
   3. No dollar limit on repair costs.
   4. Exceptions NOT Permitted:
      a. Improper installation, damage from environmental contaminants, damage from ponding water, or damage from water that does not drain freely.
      b. Damage due to wind of speed not less than 70 mph.

C. Roof Installer's Warranty: Provide written warranty from the Contractor / Roofing Subcontractor stating that the Contractor / Roofing Subcontractor will respond within 24 hours, and repair within seven (7) calendar days, from the time and date, respectively, of the Owner notifying the Contractor, any leaks in the roofing assembly for a period of two years beginning the date Substantial Completion is achieved; at no cost to the Owner.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Carlisle SynTec – Carlisle, PA; (800) 479-6832
   2. Firestone Building Products – Indianapolis, IN; (800) 428-4442
   3. GAF Materials Corporation – Dallas, TX; (972) 851-0500
   4. Approved Equal

2.2 ROOFING

A. Thermoplastic (TPO) 60 mil Single Ply Membrane.

B. Roofing Requirements:
   1. Roof Covering External Fire-Resistance Classification: UL Class 'A'.
   2. Factory Mutual Classification: Class I and Windstorm Resistance of I-75 in accordance with FM DS 1-28 "Design Wind Loads."

C. Insulation Requirements:
   1. Minimum 2 layers of polyisocyanurate board.
   2. Thermal Value: Minimum average R of 30.0.

2.3 INSULATION

A. Rigid Polyisocyanurate Board Insulation:
   1. Material: Polyisocyanurate insulation complying with ASTM C1289.
   2. Board Size: 4'-0" x 4'-0" and 4'-0" x 8'-0".
   3. Edge: Square.
   4. Thermal Resistance: R value of 6.0 per inch.
   5. UL listed for Class A construction.
   6. Water Absorption: 1.5 percent by volume tested in accordance with ASTM D209.
   7. Dimensional Change: Less than 2 percent lengthwise and crosswise tested in accordance with ASTM D2126.
   8. Compression Resistance: 20 psi tested in accordance with ASTM D1621.
   9. Tensile Strength: 4 psi tested in accordance with ASTM C209.
   10. Moisture Vapor Transmission: Less than 1.0 perm tested in accordance with ASTM E96.

11. Flame Spread: Less than 75 tested in accordance with ASTM E84.
12. Provide tapered units for crickets and other locations as required to provide positive drainage.

2.4 COVER BOARD

A. Basis of Design: Georgia-Pacific Gypsum “DensDeck Prime Roof Boards.”
   1. Acceptable Product: GP Gypsum, DensDeck® Prime Roof Boards or Approved Equal.
   2. Thickness: 1/4 inch.
   3. Width: 4 feet.
   4. Length: 8 feet.
   5. Weight:1.2 lb/sq. ft.
   6. Surfacing: Primed Fiberglass Mat.
   7. Flexural Strength, Parallel (ASTM C473): 40 lbf, minimum.
   8. Flute Span (ASTM E661): 2-5/8 inches.
   9. Permeance (ASTM E96): Greater than 30 perms.
   10. R-Value (ASTM C518): 0.28.
   11. Water Absorption (ASTM C473): Less than 5 percent of weight.
   12. Surface Water Absorption (ASTM C473): Nominal 1.0 grams.
   13. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.
   14. Flame Spread/ Smoke Development (ASTM E84): Not more than 0 Flame Spread, 0 Smoke Development
   15. Combustibility (ASTM E136): Noncombustible
   16. Fire resistance rating (UL 790 and ASTM E108): Class A
   17. Mold Resistance (ASTM D3273): Score of 10

2.5 ROOFING MEMBRANE

A. Thermoplastic polyolefin (TPO) Membrane, complying with ASTM D6878, Basis of Design:
   1. Thickness: 0.060 mil (.00152 mm) [ASTM D751]
   2. Thickness over scrim: 22.1 mils (0.561 mm) (Nominal) [ASTM D7635]
   3. Breaking Strength: 305 lbf x 290 lbf (454 x 432 kg/m) [ASTM D751 Grab Method]
   4. Elongation at Break: 30% [ASTM D751]
   5. Tear Strength: 75 lbf x 130 lbf (111.8 x 193.7 kg/m) 8" x 8" (203 x 203 mm) [ASTM D751]
   6. Factory Seam Strength: 135 lbf (membrane failure) (201.1 kg/m) [ASTM D751]
   7. Puncture Resistance: 380 lb. (172 kg) [ASTM 101C Method 2031]
   8. Permeance: 0.08 Perms [ASTM E96]
   9. Dimensional Change: 0.4% @158° F (70°C), 6 hr. [ASTM D1204]
   10. Water Absorption: 0.7% @158°F (70°C), 1 week [ASTM D471]
   11. Hydrostatic Resistance: 430 psi [ASTM D751 Method D]
   12. Ozone Resistance: No visible deterioration @ 7x magnification [ASTM D1149]
   13. Weather Resistance: >25,000 KJ/(m^2.nm) @340 nm [ASTM G155/D6878]
   14. Heat Aging: 60 weeks 100% [ASTM D573]
   15. Color: White
   9. Cold Brittleness: -40 degrees C tested in accordance with ASTM D 2137.
   15. Reflectivity (based on Color: White): 0.76 tested in accordance with ASTM C 1549.
   16. Emmitance (based on Color: White): 0.90 tested in accordance with ASTM C 1371.
   17. Roll Width: 10 feet or 8 feet

2.6 ACCESSORIES

A. Plates and Fasteners: As required by the roofing manufacturer for installation on type of roof deck.
   1. Fastener length as required for thickness of insulation material and penetration of deck.

B. Adhesives, Sealants, and Primers: As recommended by manufacturer.

C. Seaming Materials: As recommended by the membrane manufacturer.

D. Flashing Materials: Materials and accessories as recommended by the manufacturer for project conditions.
   1. Use same material and thickness as roofing membrane whenever possible.

E. Termination Bars: Manufacturer's standard termination bars and fasteners.

F. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.

G. Roofing Expansion Joints: Manufacturer's standard roofing expansion joints for roof-to-roof, roof-to-wall, and other project conditions.

H. Walkway Pads: Manufacturer's standard type and size.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Inspect substrate for deficiencies.
   1. Verify the deck is supported and secured.
   2. Verify deck is clean, smooth, and flat; free of depressions, waves, or projections; properly sloped, and suitable for installation of roofing system.
   3. Verify substrate is dry and free of snow or ice.
   4. Do not proceed with roofing installation until all deficiencies have been corrected.
   5. Start of roofing shall constitute acceptance of substrate and conditions.

B. Verify that roof openings, curbs, and penetrations through roof are solidly set, and nailing strips are in place.

3.2 PREPARATION

A. Install treated wood nailers at roof edges, metal flashings, gutters, and elsewhere indicated on drawings and approved shop drawings, and as required by the roofing system manufacturer.

B. Fasten to structural roof and wall framing with fastener heads countersunk with the surfaces of the nailer.
   1. Space fasteners at 18 inches minimum or as required by the roofing system manufacturer.

3.3 INSTALLATION

A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's written installation instructions.

B. Do not conduct roofing operations during the following weather conditions:
   1. Do not apply roofing to damp or frozen deck surface.
   2. Do not apply roofing when precipitation is expected or occurring.
   3. Do not apply roofing when ambient temperature is outside the temperature range acceptable to the roofing manufacturer.

C. Do not expose or open materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

D. Coordinate the work with installation of associated counterflashings installed by other

sections as the work of this section proceeds.

3.4 INSULATION AND COVER BOARD

A. Insulation:
   1. Do not apply roof insulation until all other work has been completed which requires foot or equipment traffic on deck.
   2. Do not install wet, damaged, or warped insulation boards.
   3. Install insulation boards with staggered board joints in one direction.
      a. Install insulation boards snug.
      b. Gaps between board joints which exceed ¼ inch must be filled with like insulation material.
      c. Do not kick insulation boards into place.
      d. Miter and fill the edges of the insulation boards at ridges, valleys, and other changes in plane to prevent open joints or irregular surfaces.

   4. Avoid breaking or crushing of the insulation at the corners.
   5. Cut insulation to fit neatly to perimeter blocking and around penetrations.
   6. Lay subsequent layers of insulation with joints staggered minimum 6 inches from joints of preceding layer.
   7. Do not install any more insulation than will be completely waterproofed each day.

B. Roof Cover Board:
   1. Install one layer of roof cover board over insulation.
   2. Fit per manufacturer's recommendations and installation instructions.

C. Mechanically fasten insulation to decking in accordance with the roofing manufacturer's written installation instructions.
   1. Use fasteners of sufficient length to attach the cover board and insulation into the decking.

3.5 MEMBRANE APPLICATION

A. Start the application of membrane plies at the low point of the roof or at the drains so that the flow of water is over or parallel to, but never against the laps.

B. Use full width rolls in the field and perimeter region of roof.
   1. Place membrane so that wrinkles and buckles are not formed.
      a. Any wrinkles or buckles must be removed from the sheet prior to permanent attachment.

C. Roof membrane shall be fully adhered immediately after it is rolled out, followed by welding to adjacent sheets.
   1. Fully adhere membrane sheets to the substrate with hot roofing asphalt at the rate recommended by the roofing manufacturer.
   2. Prevent seam contamination by keeping the asphalt application a few inches back from the seam area.
   3. Adhere approximately one half of the membrane sheet at a time.
   4. Roll membrane with a weighted roller to insure complete bonding between asphalt and membrane.

D. Overlap roof membrane a minimum of 3 inches for side laps and 3 inches for end laps.
   1. Install membrane so that the side laps run across the roof slope lapped towards drainage points.
   2. Membrane laps shall be hot-air-welded together.
      a. All welds shall be continuous, without voids or partial welds.
      b. Welds shall be free of burns and scorch marks.

E. All cut edges of reinforced membrane shall be sealed with the roofing manufacturer's TPO

Cut Edge Sealant.

3.6 FLASHING

A. Flash roof edges, intersections with vertical surfaces, curbs, ducts, scuppers, and penetrations in accordance with manufacturer's details and written installation instructions to comply with warranty requirements.
   1. Flash with coated metal, membrane flashing, and flashing accessories as required for project conditions.
   2. Install termination bar and fasten in accordance with manufacturer's details.

B. All penetrations shall be a minimum of 24 inches from curbs, walls, and edges to provide adequate space for proper flashing.
   1. Flash pipes with TPO pre-molded pipe flashing where their installation is practical.

3.7 ROOF DRAINS

A. Refer to roof plan and plumbing drawings for size, type, and location of roof drains.
B. Roof drains shall be provided with a minimum 36 inch x 36 inch sump.
   1. Slope of tapered insulation within the sump shall not exceed 4 inches in 12 inches.
   2. Lap seam shall not be located within the sump area.

C. The roofing membrane shall be set in a full bed of water block on the drain flange prior to securing.

3.8 EXPANSION JOINTS

A. Install roofing expansion joints where indicated or as required to replace existing.

B. Install prefabricated joint components in accordance with manufacturer's instructions.
   1. Expansion joint cover bellows shall be a minimum of 1.5 times the expansion joint opening.

3.9 WALKWAY INSTALLATION

A. Install walkway pads at all roof access locations, roof mounted equipment locations, and areas of repeated rooftop traffic (even if not shown on roof plan).

B. Walkway pads shall be spaced a minimum of 2 inches apart to allow for drainage between pads.

C. Fully adhere walkway pads to the roof membrane in accordance with the manufacturer's recommendations.

3.10 FIELD QUALITY CONTROL

A. Contractor shall require site attendance of roofing material manufacturer a minimum of once during installation of the roofing work and once after completion.

3.11 CLEANING

A. Do not allow trash, waste, or debris to collect on the roof. These items shall be removed from the roof on a daily basis.

B. Properly clean the finished roof surface after completion, making sure drains and gutters are not clogged.

3.12 PROTECTION

A. Protect all partially and fully completed roofing work from other construction operations until completion.

B. Stage materials in such a manner that foot traffic is minimized over completed roof areas.

C. Temporary tie-ins shall be installed at the end of each workday and removed prior to commencement of work the following day.

END OF SECTION 07 5400 – THERMOPLASTIC MEMBRANE ROOFING

SECTION 07 9200 - JOINT SEALANTS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes installation of sealants in interior and exterior joints, around door frames and other components, around items penetrating structure, and wherever indicated or required to seal joints and prevent flow of air or water.

1.2 RELATED SECTIONS

A. Sealants specified in this section are to be installed as part of work specified in other sections. Coordinate requirements.

1.3 REFERENCES

A. ASTM C834: Latex Sealing Compounds.

B. ASTM D1056: Flexible Cellular Materials; Sponge or Expanded Rubber.

C. FS TT-S-001543: Sealing Compound: Silicone Rubber Base for Caulking, Sealing, and Glazing in Buildings and Other Structures.

D. FS TT-S-001657: Sealing Compound: Single Component, Butyl Rubber Based, Solvent Release Type.

E. FS TT-S-00227: Sealing Compound: Elastomeric Type, Multi-Component for Caulking, Sealing, and Glazing in Buildings and Other Structures.

1.4 SUBMITTALS

A. Provide in accordance with Section 01 3300 - Submittal Procedures.
   1. List of proposed products and data indicating sealant chemical characteristics, performance criteria, limitations, and colors available.
   2. Samples of available colors to be selected by Architect so that appearance is compatible with surrounding surfaces.
   3. 2 inches minimum length of manufactured foam expansion joint sealer.
   4. Manufacturer's installation instructions.

1.5 QUALITY ASSURANCE

A. Low Emitting Materials: The volatile organic compound (VOC) content of sealants and sealant primers shall not exceed the limits defined in Rule #1168, “Adhesive and Sealant Applications” of SCAQMD.

1.6 PROJECT CONDITIONS

A. Do not install solvent curing sealants in enclosed building spaces without proper ventilation.

B. Maintain temperature and humidity recommended by manufacturer during and after installation.

C. Store expansion joint sealer at 65 degrees F minimum for 12 hours prior to installation.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Bostik, Inc. – Wauwatosa, WI; (414) 774-2250
   2. Dow Corning Corporation – Midland, MI; (800) 248-2481
   3. Sika Corporation – Lyndhurst, NJ; (201) 933-8800
   4. Other manufacturers as submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 SEALANTS

A. Type A - Polyurethane, FS TT-S-00227, Type I, Class A:
   1. Multi-component, self leveling.
   2. Movement: 25 percent.
   3. Joint size limitation:
      a. Minimum: 3/8 inch x 3/8 inch.
      b. Maximum: No width limitation, 1/2 inch deep.

   4. Life expectancy: 10 years.
   5. For application with colored concrete surfaces, provide colored sealant to match color of concrete.

B. Type B - Silicone sealant, FS TT-S-001543, Class A:
   1. Single component, low modulus, ultraviolet resistant.
   2. Movement: 100 percent expansion, 50 percent contraction.
   3. Service temperature range: -65 degrees F to 300 degrees F.
   4. Joint size limitation:
      a. Minimum: 1/8 inch x 1/8 inch.
      b. Maximum: 1 inch wide x 1/2 inch deep.

   5. Life expectancy: 30 years.

C. Type C - Butyl, FS TT-S-001657, Type I:
   1. Single component.
   2. Movement: 5 percent.
   3. Joint size limitation:
      a. Minimum: ¼ inch x ¼ inch.
      b. Maximum: 1/2 inch wide x 3/8 inch deep.

   4. Life expectancy: 10 years.

D. Type D - Acrylic latex, ASTM C 834:
   1. Single component, fast setting, paintable.
   2. Movement: 12 percent.
   3. Joint size limitation:
      a. Minimum: ¼ inch x ¼ inch.
      b. Maximum: 3/4 inch wide x 1/2 inch deep.

   4. Life expectancy: 10 years.

2.3 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint cleaner: Non-corrosive, non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint backing: ASTM D1056 round polyethylene foam rod oversized 30 percent larger than joint width.

D. Bond breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify that joint openings are ready to receive sealants and firestopping.

B. Beginning installation implies installer accepts existing surfaces.

3.2 PREPARATION

A. Clean and prime joints in accordance with manufacturer's instructions.

B. Remove loose materials and foreign matter which might impair adhesion of sealant.

C. Protect surrounding surfaces from damage or disfiguration.

3.3 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Sealants:
1. Completely seal joints as required to render weathertightness, close openings, and allow movement of materials. Seal around all conduit penetrations of structure.
2. Install joint backing to achieve a sealant depth no greater than 1/3 joint width. Install backing with blunt instrument; do not twist rod.
3. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these ranges.
4. Apply sealant with minimum exposure to air using pressure gun with nozzle cut to fit joint width.
5. Install sealant free of air pockets, foreign embedded material, ridges, and sags.
6. Tool joints concave unless otherwise noted.
7. Do not lap or feather onto adjacent surfaces.

3.4 CLEANING AND REPAIRING

A. Clean adjacent soiled surfaces.

B. Repair or replace defaced and disfigured finishes caused by work of this Section.

C. Protect sealants until cured.

D. Visually inspect joints after 30 days. Replace joints showing bond failure, excessive shrinkage, cracking, or improper curing

3.5 SCHEDULE

A. For the following locations and conditions provide the type of sealant listed except where firestopping is required.
1. Concrete paving: Type A.
2. Flashing and sheet metal: Type B.
3. Glass block expansion joints: Type B.
4. Hollow metal frames: Type C.
5. Aluminum frames: Type B or as recommended by manufacturer of frames.

6. Under thresholds: Type B.
7. Glazing: Type C.
8. Gypsum board partitions and other general interior use: Type D.
9. Ceramic tile, plastic laminate countertops, and other interior locations subject to water exposure: Type B.
10. Around perimeter of sound barrier partitions and items penetrating them as well as other acoustical applications: Type E.

END OF SECTION 07 9200 - JOINT SEALANTS

SECTION 08 1100 - STEEL DOORS AND FRAMES

PART 1 – GENERAL

1.1 WORK INCLUDED

A. Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes non-rated and fire-rated interior and exterior hollow steel doors, hollow steel door and window frames, and grouting of hollow steel frames.

1.2 RELATED SECTIONS

A. Section 08 7100 - Finish Hardware

B. Section 08 8000 - Glazing (Glazing for full glazed steel doors, vision lights, and hollow metal window frames).

C. Section 09 9100 – Painting

D. See Door Schedule on drawings for sizes and fire ratings of hollow metal doors and frames.

1.3 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI A250.6: Hardware on Standard Steel Doors (Reinforcement Application).
2. ANSI A250.8: Recommended Specifications for Standard Steel Doors and Frames.
3. ANSI A250.10: Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
4. ANSI A250.11: Recommended Erection Instructions for Steel Frames.

B. American Society of Testing and Materials (ASTM):
1. ASTM A366: Steel, Carbon, Cold Rolled Sheet, Commercial Quality.
2. ASTM A653: Steel Sheet, Carbon, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
3. ASTM A780: Practice for Repair of Damaged Hot-Dip Galvanized Coatings.
4. ASTM A924: General Requirements for Sheet Steel, Metallic Coated by the Hot-Dip Process.
5. ASTM C578: Rigid, Cellular Polystyrene Thermal Insulation.

C. Door Hardware Institute (DHI): Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames.

D. International Conference of Building Officials (ICBO): ICBO UBC 7-2 - Positive Pressure Fire Tests of Door Assemblies.

E. National Fenestration Rating Council (NFRC): NFRC 400 - Procedure for Determining Fenestration Product Air Leakage.

F. National Fire Protection Association (NFPA):
1. NFPA 80: Fire Doors and Windows.
2. NFPA 105: Installation of Smoke-Control Door Assemblies.

G. Steel Door Institute (SDI) Publications: SDI 117 - Manufacturing Tolerances Standard Steel Doors and Frames.

H. Steel Structures Painting Council (SSPC
   1. SSPC Paint 20: Zinc-rich Primers (Type I, Inorganic, and Type II, Organic).
   2. SSPC SP 5: White Metal Blast Cleaning.
   3. SSPC SP 8: Pickling.

1.4 SUBMITTALS

A. Submit in accordance with Section 01 3300 - Submittal Procedures:
   1. Manufacturer's product data.
   2. Shop drawings indicating door and frame elevations, dimensions, frame configurations and profiles, cutouts for hardware, reinforcement, anchors, and details for fabrication, glazing, and installation.
   3. Door and frame schedule: Use same reference numbers as indicated in Contract Documents.
   4. Certificates documenting successful testing for applicable and specified requirements for fire testing, R-value, and air leakage.
   5. Warranty information.

1.5 QUALITY ASSURANCE

A. Conform to the requirements of ANSI A250.8.

B. Fire rated doors and frames: Provide units identical to assemblies tested and listed by Factory Mutual (FM), Underwriters Laboratories (UL), Warnock Hersey, or other testing agency acceptable to Architect. Units shall bear testing agency labels.
   1. Positive pressure: Provide certificate that fire rated doors have been tested for positive pressure in accordance with ICBO UBC 7-2.

C. Thermal resistance rating: Provide certificate that exterior doors have been tested to provide minimum R-value of 3.8 when tested in accordance with ASTM C236.

D. Air-leakage: Provide certificate that exterior doors and frames have been tested in accordance with NFRC 400 as door assembly (including weatherstripping and gaskets) with maximum air leakage of 0.4 cubic feet per minute per square foot.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Frame spreaders: Before shipment, install temporary spreaders at bottom of frames; do not remove until frames are in place.

B. Protection: During shipping and storage protect doors with cardboard or other resilient packaging. Immediately remove wrappings that become wet.

C. Storage: Store under cover in dry, vented, humidity free, protected space. Place units on blocking in upright position with a minimum of 1/4 inch air circulation space between units.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Amweld International - Irving, TX; (888) 775-2397.
   2. Ceco Door Products - Milan, TN; (731) 686-8345.
   3. Steelcraft - Cincinnati, OH; (513) 745-6400.
   4. Other manufacturers as submitted and approved in accordance with Section 01 6200 "Product Options".

2.2 MATERIALS

A. Cold-rolled steel sheet: Commercial quality, stretcher level for flatness complying with ASTM A366.

B. Galvanized steel sheet: Comply with ASTM A924 and coated by hot dip process in accordance with ASTM A653 to A60 or G60 coating.

C. Door core:
1. Honeycomb: Resin impregnated cardboard honeycomb with 1 inch maximum cells.
2. Polystyrene: Rigid, extruded, fire retardant, closed cell board complying with ASTM C578.

D. Galvanizing repair paint: Comply with SSPC - Paint 20.

E. Primers:
1. Galvanized steel: Zinc-dust, zinc-oxide, air-dried primer.
2. Cold rolled steel: Rust-inhibiting primer complying and compatible for field applied finish paint coats. Factory applied and either air-dried or thermoset.

F. Glazing: As specified in Section 08 8000 - Glazing.

G. Grout: Perlite gypsum type. Mix with only enough water for stiff workable mixture.

2.3 DOOR FRAMES

A. Type: Hollow steel construction manufactured in compliance with ANSI A250.8.

B. Fabrication:
1. Fabricate frames as welded units. Welds shall be full length of joint and ground smooth.
2. Mortise, reinforce with plates, and drill frames to receive hardware in accordance with ANSI A250.6. Coordinate with hardware supplier to ensure proper preparation of frames for mounting hardware items.
3. Prepare door frames for 3 silencers if required.

C. Profile: Combination type with integral stop and trim of size and configuration shown on Drawings. Minor variations to accommodate manufacturer's standard fabrication is acceptable.

D. Exterior frames:
1. ANSI A250.8 Grade: Level III - Extra Heavy Duty.
2. Material: 16 gage minimum, galvanized steel sheet.

E. Interior frames:
1. ANSI A250.8 Grade: Level II - Heavy Duty.
2. Material: 16 gage minimum, cold rolled steel sheet.

F. Provide anchors for mechanical attachment of frames to adjacent structure. Provide 3 anchors minimum for each door jamb.
1. Masonry: T strap or strap and stirrup adjustable anchors for embedment in mortar joints.
2. Metal studs: Sheet metal Z screw attached to studs.
3. Floor anchors: 18 gage, adjustable base anchor for direct attachment to floor.
4. Anchors for galvanized frames shall have hot dip galvanized finish.

G. Fire-rated frames: Provide fire-rated units as indicated in Door and Window Schedules on Drawings.
1. Characteristics of fire-rated frames shall be as indicated on schedules and specified

herein.

2.4 STEEL DOORS

A. Type: Hollow steel construction manufactured in compliance with ANSI A250.8.

B. Thickness: 1-3/4 inches.

C. Fabrication:
1. Edges: Smooth, seamless, unbroken edges with no visible seams along hinge, lock, and face surfaces. Interlocking joints shall be tack welded, filled, and ground smooth.
2. Exterior Doors: Close top and bottom edges flush as integral part of door. Seal joints against water penetration.
3. Prepare doors to receive hardware in accordance with ANSI A250.6. Provide hardware reinforcement plates welded in place. Coordinate with hardware supplier to ensure proper preparation of doors for mounting hardware items.
4. Coordinate cut-outs for louvers to ensure integrity of fire rated doors.
5. Manufacturing Tolerances: Comply with SDI 117.
6. Door Numbers: Permanently stamp hinge side of door with reference number as designated on Drawings.

D. Exterior flush panel doors:
1. ANSI A250.8 Grade: Level III - Extra Heavy Duty, Model 2.
2. Face sheet: 16 gage minimum, galvanized steel sheet.
3. Core: Polystyrene rigid insulation.
4. Sound Transmission Class: STC 31, minimum.

E. Interior flush panel doors:
1. ANSI A250.8 Grade: Level II - Heavy Duty, Model 2.
2. Face Sheet: 18 gage minimum, cold rolled steel sheet.
3. Core: Honeycomb.
4. Sound Transmission Class: STC 33, minimum.

F. Fire-rated doors: Provide fire-rated units as indicated in Door Schedule on Drawings.
1. Characteristics of fire-rated doors shall be as indicated on schedule and specified herein.
2. Permanently attach fire-rating label to door edge.

2.5 FACTORY APPLIED FINISHES

A. Cold rolled steel doors and frames:
1. Preparation: In accordance with SSPC-SP 1, clean with non-petroleum solvent to remove oil, dirt, grease, and other contaminants.
   a. Remove mill scale and rust to comply with SSPC SP 5 or SSPC SP 8.
2. Pretreatment: Immediately after preparation, apply conversion coating compatible with primer.
3. Primer: Immediately after pretreatment, apply primer to prepare units for site applied paint finish.

B. Galvanized steel doors and frames:
1. Preparation: Clean with non-petroleum solvent to remove oil, dirt, grease, and other contaminants.
   a. Clean welds, mechanical connections, and abraded areas and apply galvanizing repair paint in accordance with ASTM A780.

2. Pretreatment: Immediately after preparation, apply conversion coating compatible with primer.
3. Primer: Immediately after pretreatment, apply primer to prepare units for site applied paint finish.

2.6 DOOR GLAZING

A. Equip openings with glazing frames and moldings that are flush with door face.
   1. Frames for fire-rated doors shall be of size and type to maintain fire rating.

B. Glazing stops: Rectangular profile.
   1. Exterior stop to be non-removable.
   2. Interior stop to be removable snap-on type or attached with countersunk screws.

C. Glazing: Factory glaze doors with glazing as specified in Section 088000 “Glazing”.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install door and window frames in accordance with approved shop drawings, manufacturer's instructions, and ANSI A250.11.

B. Placing Frames:
   1. Place frames before constructing enclosing walls and ceilings.
   2. Center in opening, plumb, square and level.
   3. Door jamb anchors: Install 3 minimum each jamb at hinge and strike locations.
   4. Floor anchors: Install anchor directly to floor at each jamb.

C. Fully grout all hollow steel frames.

D. Seal joints around frames in accordance with Section 07 9200 - Joint Sealants.

E. Fit steel doors accurately in frames in accordance with ANSI A250.8.

F. Install fire-rated frames and door assemblies in accordance with NPPA 80 for class indicated in Door Schedule on Drawings.

G. Hardware: Install door hardware in accordance with Section 08 7100 “Finish Hardware”.
   1. Locate hardware as indicated on approved shop drawings or, if not indicated, in accordance with DHI Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames.

3.2 ADJUSTING AND CLEANING

A. Immediately after erection, sand smooth all rusted and damaged areas of prime coat.
   1. Touch-up with compatible, air-drying primer.

B. Check and readjust hardware items, leaving doors and frames in proper operating condition.

END OF SECTION 08 1100 - STEEL DOORS AND FRAMES

SECTION 08 1400 - WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Solid-core doors with wood-veneer faces and factory finish and vision lights.

B. Related sections:
   1. Section 08 1100 - Steel Doors and Frames; Hollow steel frames for wood doors.
   2. Section 08 7100 - Door Hardware; Finish hardware for wood doors.
   3. Section 08 8000- Glazing; Glass for vision lights in wood doors.

1.2 QUALITY ASSURANCE

A. Quality Standard: Comply with AWI/AWMAC (QSI) "Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada"; 2005, 8th Edition, Version 2.0.

B. Manufacturer: Company specializing in manufacture of wood doors with minimum 5 years experience building flush architectural grade doors.

C. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

D. Labeled Doors shall be listed, and conform to the requirements of, Intertek Testing Services-Warnock Hersey (ITS-WH).

E. Fire-Rated Wood Doors when scheduled in Drawings: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252; 450 deg F

1.3 SUBMITTALS

A. Provide in accordance with Section 01 3300 - Submittal Procedures:
   1. Product data. Indicate door core materials, door thickness, construction, veneer species, cut color and matching, blocking options.
   2. Shop drawings showing To/From locations, hand, elevation, sizes, dimensions, manufacturer's door series reference, fabrication details, location of internal blocking for hardware, and glazing installation.
   3. Samples of factory finishes, for selection by Architect.
   4. Copy of manufacturer's warranty for review by Architect prior to issuance to the Owner.

B. Manufacturer's installation instructions.

1.4 DELIVERY, STORAGE, HANDLING AND SITE CONDITIONS

A. Store flat on level surface in clean, dry, well ventilated area. Do not store in damp or wet areas, including areas where curing cement or wall finishes are present. HVAC systems should be operating and balanced prior to arrival of doors.
   1. Avoid extreme heat.
   2. Relative humidity: 30 percent minimum, 55 percent maximum.

B. Deliver Store, Protect and Handle doors under provisions of AWI, WDMA, WIC and manufacturer's care and handling instructions.

C. Cover to keep clean, but permit air circulation.

D. Do not drag one door across another.

C. Protect doors from exposure to natural and artificial light after delivery.

1.5 WARRANTY

A. Submit in accordance with Section 01 770 - Closeout Procedures:
   1. Warranty against defects in manufacturing, warping, and delamination of facing for interior solid core flush doors, per AWI recommended tolerances, for life of initial installation.

1.7 COORDINATION

A. Coordinate door installation with door opening construction, door frame and door hardware installation with a pre-installation conference.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Eggers Industries, Neenah, Wisconsin; (920) 722-6444.

B. Masonite Architectural brands

B. Vancouver Architectural Doors. Puyallup, WA (800) 999-3667

C. Approved Equals

2.2 FLUSH DOORS

A. Type: Flush interior doors, 1-3/4 inches thick, solid core 5-ply construction, fire rated as indicated in Door Schedule on Drawings suitable for transparent finish.

B. Construction:
   1. Comply with AWI Section 1300, PC-5 ME, Custom Grade, with A grade faces.
   2. Fire-rated doors: Comply with AWI Section 1300, FD-5. Attach positive pressure fire rating label to door edge. Fire rating label shall include the “S” label, where required for smoke.
      a. Labeled doors shall be provided as “Category A”. All components required for label shall be provided as an integral part of the door construction. Smoke Seals, where required, shall be supplied in section 08710. Coordinate requirements of labeled door assembly with related door frame and hardware components provided in other sections, to assure complete compliance with tested assemblies.

   3. Core: Particleboard, ANSI A208.1, 1-LD-1 Grade. Provide solid wood blocking for installation of locksets, closers, and exit devices where throughbolts are not scheduled to be used.
   4. Stiles and rails sanded and bonded to core:
      a. Top and bottom rails: 1-1/8 inches minimum solid wood.
      b. Stiles: 1-1/2 inch minimum hardwood, same species as face veneer with no finger joints.

   5. Face: Select red oak, plain sliced veneer suitable for transparent finish. Veneer leaves shall be balanced, book matched.

2.3 FACTORY FINISH

A. Factory finish wood doors in accordance with AWI Quality Standard Section 1500, System TR-6, satin finish, Custom quality.

B. Wood grain shall be semi-filled.

C. Staining (Color): Transparent finish

D. Sheen: Satin

E. Factory seal top and bottom door edge, and all cutouts, with 2 coats clear sealer.

2.4 VISION LIGHTS

A. Acceptable manufacturers:
   1. Anemostat, Carson, California; (213) 775-7441.
   2. Manufacturers of other products submitted and approved in accordance with Section 01 6300 - Product Substitution Procedures.

B. Size: Refer to Drawings.

C. Type: Metal frame with countersunk mounting holes; FGS-75 as manufactured by Anemostat. Provide fire rated vision lights with UL listing for doors indicated on Door Schedule to be fire rated:
   1. Material: 18 gage cold rolled steel.
   2. Finish: Factory primed.

D. Glazing as specified in Section 08 8000 - Glazing:
   1. Fire rated doors: 1/4 inch clear wire glass with square mesh.
   2. Non-rated doors: 1/4 inch, clear, tempered safety glass.

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify that frames have been properly installed and prepared for the door type, hardware, swing direction and that frames are plumb, square, and sized accurately.

B. Allow doors to become acclimated to finished building ambient air temperatures and humidity levels prior to their installation.

C. Coordinate cut-outs for vision lights to ensure integrity of fire-rated doors. Verify exact size required for vision lights being provided.

D. Proceed to installation of doors only after unacceptable frame conditions have been remediated.

3.2 INSTALLATION

A. Install doors in accordance with NFPA80 and as required by Intertek Testing Services / Warnock Hersey.

B. Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.

C. Consult door manufacturer for maximum allowable field modification of doors including, but not limited to: lock preps, undercut or trimming guidelines, doors being provided specifically for the Work of this project, and to assure labels and warranties are not voided.

1. Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
2. Reseal or refinish any doors that require site alteration.

D. Coordinate installation of doors with that of door frames and hardware.
1. Drill pilot screw and bolt holes using templates provided by hardware manufacturer.
2. Adjust hardware for smooth and balanced door movement.
3. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

3.3 ADJUSTING

A. Operation: Re-hang or replace doors that do not swing or operate freely or that bind against any frame edge.

B. Finish: Replace damaged doors or doors that do not meet the requirements of this section. Doors may be repaired or refinished in the field when the work complies with the manufacturer's requirements, shows no evidence of repair or refinishing, and will be warranted by the manufacturer same as if the work had been completed by the manufacturer.

END OF SECTION 08 1400 - WOOD DOORS

SECTION 08 3113 - ACCESS DOORS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes non-rated and fire rated access doors and frames.

1.2 RELATED SECTIONS

A. Section 09 2900 – Gypsum Board

B. Section 09 9100 – Painting

C. Divisions 22 thru 28: Requirements to provide access to concealed equipment.

1.3 SUBMITTALS

A. Submit the following in accordance with Section 01 3300 “Submittal Procedures”:
   1. Provide manufacturer’s product data for each type of access panel.
   2. Provide manufacturer’s installation instructions for each different installation condition.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. CESCO Products - Minneapolis, Minnesota; (888) 422-3726.
   2. J.L. Industries - Bloomington, Minnesota; (612) 835-6850
   3. Milcor - Holland, Ohio; (800) 528-1411
   4. Other manufacturers as submitted and approved in accordance with Section 016200 “Product Options”.

2.2 NON-RATED ACCESS DOORS

A. Type: Flush mounted, hinged access door and frame suitable for gypsum board or masonry opening.
   1. Bead on outer frame for receiving gypsum board joint compound.

B. Material:
   1. Door: 14 gage steel.
   2. Frame: 16 gage steel.

C. Hardware:
   1. Concealed hinge opening to 165 degrees minimum.
   2. Keyed cylinder lock.

D. Finish: Phosphate dipped steel with prime coat.

2.3 FIRE RATED ACCESS DOORS

A. Type: UL listed, flush mounted, hinged access door and frame suitable for gypsum board or masonry opening.
   1. Bead on outer frame for receiving gypsum board joint compound.

B. Material:
   1. Door Panel: 20 gage steel, insulated sandwich type.
   2. Frame: 16 gage steel.

C. Hardware:
   1. Continuous hinge.
   2. Automatic panel closer.
   3. Self latching lock with interior release and exterior knurled knob.

D. Finish: Phosphate dipped steel with prime coat.

PART 3 – EXECUTION

3.1 PLACEMENT

A. Provide access doors where shown on the Drawings and as required to provide access to concealed equipment and components for inspection, maintenance, and replacement.
   1. Provide sizes shown on Drawings or as required to provide functional access.
   2. Receive the Architect's approval of proposed locations prior to proceeding.

B. Provide fire-rated access doors in fire rated walls and ceilings.

3.2 INSTALLATION

A. Verify rough openings for door and frame are correctly sized and located.

B. Position access unit to provide convenient access to concealed work requiring access.

C. Install frame plumb and level in wall opening.

D. Secure rigidly in place in accordance with manufacturer's written installation instructions.

END OF SECTION 08 3113 - ACCESS DOORS

SECTION 08 3336 - OVERHEAD COILING DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Overhead coiling insulated doors.

1.2 RELATED SECTIONS

A. Section 05500 - Metal Fabrications: Support framing and framed opening.

B. Section 06200 - Finish Carpentry: Wood jamb and head trim.

C. Section 08710 - Door Hardware: Product Requirements for cylinder core and keys.

D. Section 09900 - Painting: Field applied finish.

E. Section 16130 - Raceway and Boxes: Conduit from electric circuit to door operator and from door operator to control station.

F. Section 16150 - Wiring Connections: Power to disconnect.

1.3 REFERENCES

A. ANSI/DASMA 108 - American National Standards Institute Standard Method For Testing Sectional Garage Doors And Rolling Doors: Determination Of Structural Performance Under Uniform Static Air Pressure Difference.

B. NFRC 102 - Test Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems.

C. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Element.

D. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

E. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

F. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

G. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

H. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

I. NEMA MG 1 - Motors and Generators.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Overhead coiling insulated doors:

1. Wind Loads: Design door assembly to withstand wind/suction load of 20 psf (958 Pa) without damage to door or assembly components in conformance with ASTM E 330.
2. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.

B. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 0300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Details of construction and fabrication.
4. Installation instructions.

C. Shop Drawings: Include detailed plans, elevations, details of framing members, anchoring methods, required clearances, hardware, and accessories. Include relationship with adjacent construction.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

F. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years experience in the fabrication and installation of security closures.

B. Installer Qualifications: Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 COORDINATION

A. Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

1.10 WARRANTY

A. Warranty: Manufacturer's limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 3 years or 20,000 cycles, whichever occurs first.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design Manufacturer: Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: info@overheaddoor.com.

B. Requests for substitutions will be considered in accordance with provisions of Section 01 6000.

2.2 INSULATED OVERHEAD COILING SERVICE DOORS

A. Basis of Design overhead coiling insulated service doors: Overhead Door Corporation "Stormtite AP" Model 627.
   1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
      a. Flat profile type FIT-265 for doors up to 40 feet (12.19 m) wide.
      b. Front slat fabricated of:
         1) 24 gauge galvanized steel.
      c. Back slat fabricated of:
         1) 24 gauge galvanized steel.
      d. Slat cavity filled with CFC-free foamed-in-place, polyurethane insulation.
         1) R-Value: 10.9, U-Value: 0.09.
   2. Performance:
      a. Through Curtain Sound Rating: Sound Rating: STC-28 (STC-30+ with HZ noise generator) as per ASTM E 90.
      b. Installed System Sound Rating: STC-21 as per ASTM E 90.
      c. U-factor: 0.84 NFRC test report, maximum U-factor of no higher than 1.00.
      d. Air Infiltration: Meets ASHRAE 90.1 and IECC 2012/2015 C402.4.3 Air leakage <1.00 cfm/ft2.
   3. Slats and Hood Finish:
      a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.

1) Polyester Top Coat.
   (a) Gray polyester.
   (b) Tan polyester.
   (c) White polyester.
   (d) Brown polyester.

2) Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.

4. Weatherseals:
   a. Vinyl bottom seal and internal hood seals.
   b. Interior and exterior EPDM triple-seal finned guide weatherseal.
   c. Lintel weatherseal.
   d. Air Infiltration Package: IECC 2012/2015 listed; product to meet C402.4.3 2012 Air leakage <1.00 cfm/ft2.
      1) Air infiltration perimeter seal package includes: guide cover, guide cap, PVC weatherseal on exterior of guide, EPDM triple finned weatherseal on interior of guide, lintel weatherseal and vinyl bottom seal.

5. Bottom Bar:
   a. Two powder coated black steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.

6. Guides: Three structural steel angles.
7. Brackets:
   a. Hot rolled powder coated black steel to support counterbalance, curtain and hood.

8. Finish; Guides, Headplate and Brackets:
   a. Finish: Black powdercoat finish.

9. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
10. Hood: Provide with internal hood baffle weatherseal.
    a. 24 gauge galvanized steel with intermediate supports as required.

11. Electric Motor Operation: Provide UL listed electric operator, size as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.
    a. Basis of Design: Overhead Door Model RMX; 1/2 HP; wall mount; primary: “SuperBelt” poly-V flex belt, secondary: chain/sprocket
    b. Sensing Edge Protection:
       1) Electric sensing edge.

    c. Operator Controls:
       1) Push-button operated control stations with open, close, and stop buttons.
       2) Controls for both interior and exterior location.
       3) Controls surface mounted.

    d. Motor Voltage: 115/230 single phase, 60 Hz.

12. Windload Design:
    a. Standard windload shall be 20 PSF.

13. Locking:

a. Interior slide bolt lock for electric operation with interlock switch.

14. Wall Mounting Condition:
    a. Face-of-wall mounting.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify opening sizes, tolerances and conditions are acceptable.

B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.

D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

E. Coordinate installation of electrical service with Section 16 1500. Complete wiring from disconnect to unit components.

F. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07 9000.

G. Install perimeter trim and closures.

H. Instruct Owner’s personnel in proper operating procedures and maintenance schedule.

3.4 ADJUSTING

A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.

B. Remove labels and visible markings.

C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

A. Protect installed products until completion of project.

END OF SECTION 08 3336 - OVERHEAD COILING DOORS

SECTION 084313 – ALUMINUM FRAMED STOREFRONTS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following applications for aluminum framed storefront as indicated on the drawings and specified herein:
   1. Aluminum storefront.
   2. Entrance doors.

1.2 RELATED SECTIONS

A. Section 079200 – Joint Sealants

B. Section 088000 – Glazing

1.3 PERFORMANCE REQUIREMENTS

A. Aluminum framed storefront systems shall withstand the effects of the following performance requirements without failure due to defective manufacture, installation, or other defects in construction.
   1. Design Wind Loads: Refer to Structural Engineering Drawings.
   2. Performance Requirements: Uniform load, thermal resistance, air infiltration, water resistance, condensation resistance, sound transmission, windborne debris impact resistance, operating force, forced entry resistance and any other performance criteria shall be consistent with the manufacturer's performance requirements for the specified aluminum storefront and doors.

1.4 SUBMITTALS

A. Provide the following in accordance with Section 013300 "Submittal Procedures":
   1. Product Data: Provide material descriptions and installation instructions for each type of aluminum framed storefront component specified.
   2. Shop Drawings: Include plans, elevations, dimensions of individual profiles, construction details, hardware, finishes, attachment to other work, operational clearances, and installation details.
   3. Color Charts: Provide manufacturer's standard size material samples indicating the full range of colors for selection by the Architect.
   4. Samples: Provide manufacturer's standard size sample of each storefront framing system component indicating Architect's color selection for final approval.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications: A manufacturer capable of providing an aluminum framed storefront system that meets or exceeds the performance requirements indicated, including documentation of performance by test reports and calculations.

B. Installer Qualifications: An installer which has a minimum of 3 years successful documented experience with installations of the same or similar storefront systems required for this project.

C. Obtain storefront framing and doors from a single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Store materials protected from exposure to harmful weather conditions.

C. Protect storefront materials against damage from elements, construction activities, and other hazards before, during, and after storefront installation.

1.7 PROJECT CONDITIONS

A. Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting of work.

1.8 WARRANTY

A. Provide manufacturer's standard two year warranty commencing from the date of Substantial Completion.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Kawneer Company, Inc. – Dallas, TX; (972) 438-1212
   2. Other manufacturers as submitted and approved in accordance with Section 01 6200 "Product Options".

2.2 MATERIALS

A. Aluminum Extrusions: Alloy and temper recommended by the aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish.
   1. Not less than 0.070 inch wall thickness at any location for the main frame.
   2. 6063-T6 alloy and temper complying with ASTM B221.

B. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel / chrome-plated steel complying with ASTM B456 for Type SC 3 severe service conditions; or zinc-coated steel or iron complying with ASTM B633 for SC 3 sever service conditions or other suitable zinc coating.
   1. Provide sufficient strength to withstand design pressure indicated.

C. Fasteners: Aluminum, nonmagnetic stainless steel or other materials which are non-corrosive and compatible with aluminum storefront framing members and other components.

D. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel; or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating.
   1. Provide sufficient strength to withstand design pressure indicated.

E. Sealant: For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by the sealant manufacturer for joint size and movement.

2.3 ALUMINUM STOREFRONT

A. Aluminum storefront framing system shall be Kawneer Trifab VG 451T as follows:
   1. Framing Members: 2 inch x 4-1/2 inch suitable for glazing as specified.
   2. Glass: Center glazed.
   3. Thermal Barrier: Kawneer IsoLock thermal break with a ¼ inch separation consisting of a two-part chemically curing, high-density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections.

2.4 ENTRANCE DOORS

A. Aluminum entrance doors shall be Kawneer Tuffline 350.
   1. 2 inch deep single acting door with 3-3/8 inch top, 3-1/2 inch vertical stile, and code required minimum bottom rail.

B. Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, or other corrosion resistant material compatible with aluminum; designed to operate smoothly, tightly close, and securely lock.

2.5 ACCESSORIES

A. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

B. Fasteners and Accessories: Manufacturer's standard corrosion resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
   1. Fasteners and accessories shall be stainless steel where exposed.

C. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

2.6 FABRICATION

A. Fabricate components that, when assembled, have the following characteristics:
   1. Profiles that are sharp, straight, and free of defects or deformations.
   2. Accurately fit joints.
      a. Make joints flush, hairline, and weatherproof.

   3. A means to drain water passing joints, condensation within framing members, and moisture migrating within system to exterior.
   4. Physical and thermal Isolation of glazing from framing members.
   5. Accommodation for thermal and mechanical movement of glazing and framing to maintain required glazing edge clearances.
   6. Provisions for field replacement of glazing.
   7. Weather-stripping in door panels or frames.
   8. Anchors, fasteners, and connection devices that are concealed from view to greatest extent possible.

B. To greatest extent possible, complete fabrication, assembly, finishing, hardware application, and other work before shipment to the project site.

C. Install reinforcing as necessary for performance requirements.

1. Separate dissimilar metals with gasketing or other separator which will prevent corrosion.

D. Welding shall comply with AWS recommendations to avoid discoloration.
   1. Grind exposed welds smooth and restore finish.

E. After fabrication, clearly mark components to identify their location in accordance with approved shop drawings.

2.7 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for designating and applying finishes.

B. Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

C. Provide factory finishing as follows:

   1. Kawneer Permanodic, Architectural Class I Clear (AA-M12C22A41) Anodic Coating complying with AAMA 611.
   2. Noticeable variations in finish for a single framing member is not acceptable.
      a. Variations in appearance of abutting or adjacent frames is not acceptable within ½ of the range of approved samples.

   3. Protect mechanical finishes from damage by application of strippable, temporary protective covering prior to shipment.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine openings, structural support, and other conditions for compliance with requirements for installation.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine weather barriers, wall flashings, and other built-in components to ensure a coordinated, weather-tight aluminum storefront system installation.

3.2 INSTALLATION

A. Comply with approved shop drawings and manufacturer's installation instructions for installation of aluminum framed storefront system, accessories, and other components.

B. Install aluminum framed storefront system level, plumb, square, and true to line; without distortion or rack of framing members, doors, or panels; anchored securely in place to structural support.

C. Separate aluminum and other metal surfaces from sources of corrosion using materials and methods recommended by the manufacturer.

D. Set sill members in bed of sealant, providing joint fillers or gaskets as required for weather-tight construction.

E. Install aluminum framed storefront members to drain water, condensation and migrating moisture.

F. Refer to Section 088000 “Glazing” for installation of glass into aluminum storefront framing and doors.

3.3 FIELD QUALITY CONTROL

A. Provide manufacturer’s field service consisting of site visits for inspection of product installation.

3.4 ADJUSTING AND CLEANING

A. Adjust operating hardware to function properly, without binding, and to provide a tight fit at contact points and weather-stripping.

B. Clean aluminum surfaces immediately upon completion of aluminum framed storefront system installation.
   1. Avoid damaging protective coatings and finishes.
   2. Remove excess sealants, dirt, and other substances.

3.5 ENTRANCE DOOR HARDWARE SCHEDULE

A. Exterior Manual Doors:
   1. Pivot: Kawneer engineered heavy duty top, bottom, and intermediate pivots.
   2. Closer: LCN 4041 Heavy Duty Series Door Closer.
   3. Push/Pull Handles: Kawneer Architects Classic No. CO-9.
   4. Exit Device: Kawneer Paneline II CR-90 with concealed vertical rod device.
   5. Locking and Keying: Able to receive Schlage large format IC cylinders.
   6. Kickdown Holder: Stainless steel door mounted type with rubber bumper.
   7. Threshold: 4 inch wide x 1/2 inch high x full width of door, aluminum with tested water performance.
   8. Weather stripping: Sealair weathering system in the door and frame consisting of a dense, bulb polymeric material.
      a. Provide EPDM blade gasket sweep strip applied to the bottom door rail with concealed fasteners.

B. Interior Manual Doors:
   1. Pivot: Kawneer engineered heavy duty top, bottom, and intermediate pivots.
   2. Closer: LCN 4041 Heavy Duty Series Door Closer.
   3. Push/Pull Handles: Kawneer Architects Classic No. CO-9.
   4. Exit Device: Kawneer Paneline II CR-90 with concealed vertical rod device.
   5. Locking and Keying: Able to receive Schlage large format IC cylinders.
   6. Kickdown Holder: Stainless steel door mounted type with rubber bumper.
   7. Sound stripping: Adhesive backed, compression bulb type at each edge of doors.

END OF SECTION 08 4313 – ALUMINUM FRAMED STOREFRONTS

SECTION 08 7100 - FINISH HARDWARE

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. Types of door hardware specified in this section include the following:
   1. Locksets, latchsets and keying.
   2. Hinges.
   3. Door closers.
   4. Stops and door trim.
   5. Exit devices.
   6. Coordinators and flush bolts.
   7. Weatherstripping.
   8. Thresholds.

C. Types of door hardware not specified in this section includes any hardware which is specified in a door or door system section of this project manual which is intended to be supplied with the door.

1.2 RELATED SECTIONS

A. Section 08 1100 – Steel Doors and Frames.

B. Section 08 1400 – Wood Doors.

C. Section 09 9000 – Painting.

1.3 SYSTEM DESCRIPTION

A. “Hardware” includes items known commercially as finish hardware which are required for operation of swinging, sliding, and folding doors.

1.4 QUALITY ASSURANCE

A. Obtain each type of hardware from a single manufacturer.

B. Hardware shall be in strict compliance with all applicable codes, and shall be of quality and grade for high traffic use.

C. ANSI / BHMA designations used to describe hardware items, and to define quality or function, are derived from industry and reference standards. Provide products complying with these standards, as well as additional industry and reference standards as may be applicable.

D. Provide hardware for fire-rated openings in compliance with NFPA 80 and local building code requirements.
   1. Only provide hardware which has been tested and listed by UL or FM for types and sizes of doors required, and complies with requirements of door and frame labels.

2. Where emergency exit devices are required on fire-rated doors, provide UL or FM label on exit devices indicating “Fire Exit Hardware”.

E. Supplier Qualifications: Hardware supplier shall be a recognized architectural finish hardware supplier with warehousing facilities, who has been furnishing hardware in the project’s vicinity for a period of not less than 5 years.
   1. The hardware supplier must have in employment an Architectural Hardware Consultant (AHC), as recognized by the Door And Hardware Institute, with a minimum of 5 years of Architectural Hardware experience, who shall be responsible for the detailing, scheduling, and ordering of the finish hardware for this project.

1.5 SUBMITTALS

A. Submit manufacturer’s cut sheets, installation instructions, and maintenance recommendations for each item of hardware indicated.
   1. Include all information necessary to show compliance with the specified requirements.
   2. Include certification that each item meets or exceeds applicable reference standards.

B. Submit hardware schedule as follows:
   1. Door and hardware schedule shall be provided in identical format to the Architect’s drawings and schedules.
      a. Failure to comply with the requested format shall result in rejection without review.
   2. Hardware schedule shall be organized into “Hardware Sets” indicating designations of each item required for every door or opening.
   3. Coordinate hardware with doors, frames and related work to insure proper size, thickness, hand, function, and finish of hardware.
   4. Submit schedule at the earliest possible date, particularly where acceptance of hardware schedule must precede fabrication of other work which is critical in the project construction schedule.

C. Upon approval of the finish hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed finish hardware.
   1. Hardware samples shall be finished as specified herein.
   2. Hardware samples shall be tagged with a full description for coordination with the hardware schedule.
   3. Finish hardware may be ordered upon the Architect’s approval of the finish hardware samples.

D. Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware.

E. Maintenance Manuals: Furnish 3 copies of maintenance manuals for finish hardware. Each manual shall consist of printed sheets from the hardware manufacturer bound in a three-ring binder and properly indexed. Include the following information in the maintenance manuals:
   1. Address and telephone number of the hardware supplier.
   2. Address and telephone number of each hardware manufacturer.
   3. Maintenance instructions and parts list for each type of operating hardware.
   4. Warranty information for each hardware component.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Properly package and clearly identify each item relative to the hardware schedule.

B. Deliver hardware to the jobsite only after proper provision for storage has been made. NO DIRECT SHIPMENTS WILL BE ALLOWED.

C. The hardware supplier's representative shall be present when all finish hardware is delivered to the jobsite. The supplier's representative shall check-in each item and turn over to the General Contractor for storage in a secure place under lock and key.

1.7 WARRANTY

A. Furnish 3 copies of the Written Warranty to be included in the Maintenance Manuals:
   1. Starting date for all warranty periods shall be the date of Final Completion.
   2. Warranty against failure of parts of all hardware for a period of 1 year.
   3. Warranty against failure of locksets and cores for a period of 5 years.
   4. Warranty against mechanical failure of door closers for a period of 10 years.
   5. Provide a lifetime warranty on "Lever sag".

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Locksets, Latchsets and Keying: Best Access Systems (Basis of Design)
   2. Hinges: Bommer, Hager, McKinney, Stanley
   3. Door Closers: LCN, Dorma
   4. Stops and Door Trim: Trimco, Rockwood, Stanley
   5. Overhead Stops: Glynn-Johnson
   6. Exit Devices: Von Duprin
   7. Coordinators and Flush Bolts: Glynn-Johnson
   8. Soundstripping and Weatherstripping: National Guard, Reese, Zero
   9. Thresholds: National Guard, Reese, Zero
   10. Wall Mount Sliding Door Hardware: L.E. Johnson Products, Inc.
   11. Other manufacturers as submitted and approved in accordance with Section 01 6200 "Product Options".

2.2 MATERIALS AND FABRICATION

A. Hand of Door: The drawings show the direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of the door movement as shown.

B. Base Metals: Produce hardware units of the basic metal and forming method indicated using the manufacturer's standard metal alloy, composition, temper, and hardness.
   1. Do not furnish "optional" materials or forming methods for those indicated except as otherwise specified.

C. Fasteners: Manufacturers hardware shall conform to published templates generally prepared for machine screw installation.
   1. Do not provide hardware which has been prepared for self-tapping screws except as specifically indicated.
   2. Furnish screws for installation with each hardware item.
      a. Provide Phillips flat-head screws except as otherwise indicated.
      b. Finish exposed screws to match the hardware finish or if exposed in surfaces of other work to match the finish of such other work as closely as possible including "prepared for paint" in surfaces to receive painted finish.

   3. Provide concealed fasteners for hardware units which are exposed when the door is closed except to the extent no standard units of the type specified are available with concealed fasteners.

a. Do not use thru bolts for installation where the bolt head or the nut on the opposite face is exposed in other work except where it is not feasible to adequately reinforce the work.

D. All items shall be of proper type for attaching securely to type of material on which they occur.

2.3 LOCKSETS, LATCHSETS AND KEYING

A. Locksets and latchsets shall be “Best Access Systems” 9K Series Heavy Duty Cylindrical Locksets.
   1. All locksets and latchsets shall conform to the requirements of ANSI A 156.2, Series 4000, Grade 1 UL listed.
      a. Locksets shall be heavy-duty cylindrical type with 2-3/4 inch backset.
      b. Locks shall have solid shank with no opening for access to keyed lever keeper.

   2. Provide locksets with “Best” 7 pin interchangeable core cylinders.
      a. Construct lock cylinder parts from brass, bronze, stainless steel, or nickel silver.
      b. Permanent core face shall be the same finish as lockset finish.

   3. Locksets and cores shall be of the same manufacturer to maintain complete lockset warranty.

B. Rim cylinders shall be “Best Access Systems” 1E74 standard mortise cylinders.
   1. 1-5/32 inch diameter threaded mortise cylinder.
   2. 7 pin interchangeable core.
   3. Finish shall match mortise lockset trim or storefront doors as applications require.

C. All hardware shall be lever type to comply with accessibility requirements.
   1. Lever handles shall be zinc material with a minimum wall thickness of 0.060 inch.
   2. Levers shall be 5-1/4 inches long, with 2-1/2 inch projection.
   3. Provide with contour angle return and 3 inch convex trim.
   4. Levers shall have a free-wheeling, clutch mechanism.
   5. Levers which contain a hollow cavity are not acceptable.
   6. Provide tactile lever for identification of hazardous areas.

D. Supply standard strike package with sufficient strike lip to protect door trim.
   1. Furnish wrought boxes with all lock strikes.
   2. Strike lips shall not project more than 1/8 inch beyond the frame at single doors or face of the inactive leaf at pairs of doors.

E. Keys and Keying shall be as follows:
   1. Provide construction cores and keys during the construction period.
      a. Construction cores and keys shall not be part of the Owner’s permanent keying system or furnished on the same keyway as the Owner’s permanent keying system.

   2. Supplier shall meet with Architect and Owner to finalize keying requirements and make a written proposal of the complete key system.
   3. Permanent cores shall be provided prior to Substantial Completion.
   4. All keys shall be made of nickel silver.
      a. Permanent cores and keys shall be stamped with the applicable key mark for identification.
      b. These visual key control marks shall not include actual key cuts.
      c. Permanent keys shall be stamped “Do Not Duplicate”.

   5. Furnish keys in the quantities requested for each of the following:
      a. Construction masterkey.

b. Change key per each keyed core.
c. Masterkey per set.
d. Grand Masterkey.

6. Keys shall be transmitted directly to the Owner prior to occupancy.

F. Lockset and latchset functions shall be as follows:
1. Classroom Lockset:
a. Latch operated by rotating the inside lever, or by turning the key in the outside lever, or by rotating the outside lever when not locked by the key.
b. Outside lever is locked by turning the key in the outside lever.
c. Outside lever is unlocked by turning the key in the outside lever.
d. Inside lever cannot be locked and is always unlocked.

2. Passage Latchset:
a. Latch operated by rotating the inside or outside lever.
b. Outside lever cannot be locked and is always unlocked.
c. Inside lever cannot be locked and is always unlocked.

4. Privacy Lockset:
a. Latch operated by rotating the inside lever, or rotating the outside lever only when the inside push button is out.
b. Outside lever is locked by pushing the inside button.
c. The outside lever is unlocked by rotating the outside slotted button, or by rotating the inside lever, or by closing the door.
d. Inside lever cannot be locked and is always unlocked.

5. Storeroom Lockset:
a. Latch operated by turning the key in the outside lever, or rotating the inside lever.
b. Outside lever is always locked.
c. Inside lever is always unlocked.

2.4 HINGES

A. Provide steel ball bearing, standard weight, template produced hinges as follows:
1. 4-1/2 inches x 4-1/2 inches for high frequency use on standard weight doors.
a. 5 inches for doors over 3’-6” wide.

2. Provide the number of hinges indicated for each hardware set, but not less than 3 hinges for each door leaf 90 inches or less in height.
a. Add one hinge for each 30 inches of additional height.

3. Hinges shall be of sufficient width to clear trim projection when door swings 180 degrees.
4. Fire rated doors over 8’-0” shall have heavy weight hinges.

B. Provide hinge pins as follows.
1. Steel Hinges: Steel pins.
2. Non-ferrous Hinges: Stainless steel pins.
3. Exterior Doors: Non-removable pins.
4. Interior doors: Non-rising pins.
5. Tips: Flat button and matching plug, finished to match leaves.

C. Furnish ‘Phillips’ flat-head machine screws or wood screws appropriate for the required installation.
1. Screw finish shall match surface of hinges or pivots.

D. Provide full-mortise heavy duty continuous hinge where indicated.

2.5 DOOR CLOSERS

A. Closers shall be “LCN” 4041 Heavy Duty Series Door Closers.
   1. All closers shall be non-handed.
   2. All outswinging doors shall be supplied with heavy duty parallel arm.
   3. Supply thru bolts for mounting.

B. Closers shall be fully hydraulic, full rack and pinion action with one-piece 1-1/2 inch minimum diameter forged steel piston at heavy duty closers, with a cast iron or cast aluminum case.
   1. Pinion shaft shall be minimum 5/8 inch diameter. Barrier-free at all interior doors.
   2. Separate adjusting valves shall be provided for closing speed, latching speed, and backcheck.
   3. Adjusting valves shall be of a metal material, concealed, adjustable only with special wrench, and shall be seated with “O” type rings.
   4. Hydraulic fluid shall be of a type requiring no seasonal adjustments for temperatures from 120 degrees F to -30 degrees F.

C. Comply with manufacturer’s recommendations for size of door closer depending upon size of door, draft pressure, and sound / smoke seal requirements.
   1. Anticipate high use frequency at all door locations.
   2. Comply with opening force requirements of the Americans with Disabilities Act.
   3. Closers at fire rated doors shall be in compliance with all applicable codes and certified for positive pressure.
      a. Comply with minimum opening force requirements for fire doors.

2.6 STOPS AND DOOR TRIM

A. Provide wall and floor stops with rubber bumper as follows:
   1. Material shall be brass, bronze, or stainless steel as appropriate for required finish.
   2. Convex wall stop with concealed mounting.
      a. Approximate 2-1/2 inch diameter with approximate ¾ inch projection.

   3. Floor stops shall only be used in locations where they do not act as a trip hazard, and only when wall stops are unable to be mounted.
      a. Floor stop type shall be as recommended by the manufacturer for the application, and as approved by the Architect.

B. Kickdown holders shall be door mounted type with rubber bumper.
   1. Material shall be brass, bronze, or stainless steel as appropriate for required finish.

C. Door trim shall be as follows:
   1. Material shall be 18 gauge minimum brass, bronze, or stainless steel as appropriate for required finish.
      a. Edges of plates shall be beveled and polished.

   2. Protection Plates: Plates shall be 10 inches high x 2 inches less than the door width.
   3. Push Plates: 4 inches x 16 inches.
   4. Pull Plates: 4 inches x 16 inches. Grip shall be extruded, cast bronze, or stainless steel located on center of plate.
   5. Flush Door Pull: Trimco 1115P flush door pull prepared for back-to-back mounting.

2.7 EXIT DEVICES

A. Exit devices shall be “Von Duprin” 9875 and 9975 mortise lock devices with the following features:
   1. Device shall be field sizeable with fluid damper (to decelerate push pad on its return stroke to reduce noise).
   2. Mortise lock shall be fully reversible with ¾ inch thro anti-friction latch bolt, and latch bolt deadlocking.
   3. Provide “Von Duprin” dummy or lever trim as scheduled.
      a. Lever trim shall have a clutch break away mechanism to disengage lever from operating mechanisms should excess force be applied.

B. Electrified lever trim for “Von Duprin” exit devices shall be “Von Duprin” E996 with power supply, power transfer, control device and all other components required for a complete and operating electrical lock controlled by a remote device.
   1. Provide conduit as required for routing of wiring.
   2. Install electrified lever trim in “Fail Safe Operation”.

C. Provide “Von Duprin” keyed removable mullion as follows:
   1. Easily removed by a single operation of the mortise cylinder and self locking when reinstalled.
   2. Height shall be appropriate for frame conditions.
   3. Finish shall match door frame

D. Where exit devices are mounted on doors with raised glass beads / kits, supply the appropriate glass bead kit for that condition.

2.8 COORDINATORS AND FLUSH BOLTS

A. Coordinators shall be “Glynn-Johnson” COR Series with the following features:
   1. Nylon roller for silent operation.
   2. Adjustable holding power and override.

B. Flush bolts shall be “Glynn-Johnson” FB6 manual flush bolts with spring loaded snap action lever.

2.9 SOUNDSTRIPPING AND WEATHERSTRIPPING

A. Provide soundstripping at each edge of fire rated and other indicated doors.
   1. Soundstripping shall be adhesive backed, compression bulb gasketing.
   2. Material shall be self-extinguishing and non-toxic.
   3. Gasketing shall seal against smoke, fire, air, and sound.
      a. Smoke seals at fire rated doors shall be in compliance with all applicable codes and certified for positive pressure.

B. Provide continuous weatherstripping at each edge of every exterior door frame.
   1. Weatherstripping at heads and jambs shall be surface applied metal retainer strip and bumper-type resilient insert as follows:
      a. 0.062 inch extruded aluminum with finish color to match door frame.
      b. Closed-cell sponge neoprene insert, 3/16 inch x 5/8 inch, conforming to MIL R 6130A, Type II, Grade C.

   2. Weatherstripping at door bottoms shall be stainless steel housing door bottom with contact type resilient insert as follows:
      a. Solid neoprene wiper, with 1 inch maximum drop, conforming to MIL R 6055, Class II, Grade 40.

3. Provide non-corrosive fasteners as recommended by manufacturer for applicable installations.

2.10 THRESHOLDS

A. Provide metal threshold at each exterior door location as follows:
   1. 4 inch wide, ½ inch maximum height, x door width.
   2. Grooved profile.
   3. Aluminum mill finish.

2.11 HARDWARE FINISHES

A. Provide manufacturer's standard finish, but in no case shall finishes be less than the minimum established by BHMA or other applicable reference standards.

B. Provide matching finishes for hardware components at each door opening.
   1. Reduce differences in color and overall finish as much as possible where the base metal is different for individual hardware components exposed at the same door or opening.

C. The designations used to indicate hardware finishes are those listed in ANSI A 156.18 "Materials & Finishes Standard".
   1. All hardware finishes shall be US26D "Satin Chrome".

2.12 TOOLS FOR MAINTENANCE

A. Furnish a complete set of specialized tools as needed for Owner's continued adjustment, maintenance removal, or replacement of the finish hardware.

PART 3 – EXECUTION

3.1 PREPARATION

A. Furnish all items of hardware with attachment screws, bolts, nuts, etc., as required to attach hardware to type of material as conditions require and with finish to match hardware with which they are to be used.
   1. Make all attachments to metal by template machine screws.

B. Provide sex nuts and thru bolts for door closers, forearm shoes of closers, and holding devices.

C. Mount hardware at heights indicated in "Recommended Locations for Builders Hardware" published by the Door and Hardware Institute, except as may be required to comply with governing regulations, or as otherwise directed by the Architect.

3.2 INSTALLATION

A. All finish hardware shall be installed in accordance with the manufacturer's recommendations and written installation instructions.
   1. Do not install surface mounted items until finishes have been completed on the substrate.
   2. Set units level, plumb and true to line and location.
   3. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
   4. Drill hardware items which are not factory-prepared for fasteners. Space fasteners in accordance with the manufacturer's instructions and countersink.

B. Attach hardware to masonry or concrete with expansion bolts or similar drilled anchors to develop full strength of attached device.
   1. Set expansion anchors in solid masonry, not mortar joints.

C. Run soundstripping or weatherstripping full height of both jambs and full width of head. Run door bottoms full width of doors.

D. Run thresholds full width of opening and set thresholds in full bed of sealant.

3.3 FIELD QUALITY CONTROL

A. Do not install door silencers, kickplates, pushplates, door bottoms, and wall stops until after painting is complete.
   1. Loosen locksets and panic hardware prior to painting and re-tighten after painting is complete.
   2. Mask all hardware or otherwise protect during painting operation.

3.04 ADJUSTING AND CLEANING

A. Check each door and each hardware item to insure proper function and operation.
   1. Replace items which cannot be adjusted to operate freely and smoothly as intended for the application.

B. Return to the work just prior to the Architect's Substantial Completion Inspection and make final adjustment of all hardware items.
   1. Perform final cleaning of all hardware items.
   2. Adjust hardware items as necessary to insure proper function including compensation for final operation of heating and ventilating equipment.
   3. Replace items which cannot be adjusted to operate freely and smoothly as intended for the application.
   4. Adjust all closers to meet ADA requirements for sweep time and opening force. Set the closer's backcheck valve to slow the doors opening from 85 degrees on.
   5. Instruct Owner's personnel in proper adjustment and maintenance of hardware and hardware finishes during the final adjustment of hardware.

3.5 HARDWARE SCHEDULE

A. The Hardware Schedule which follows includes items of finish hardware necessary to complete the work. Incomplete hardware sets shall be fulfilled by the hardware supplier in accordance with the products specified herein for a completely functioning door.

B. Quantities indicated are per individual location. Quantities should be totaled as required for complete hardware installation.

END OF SECTION 08 7100 - FINISH HARDWARE

[HARDWARE SCHEDULE FOLLOWS]

	HARDWARE SCHEDULE
HARDWARE SET #1: Door 5-A	(South double doors)
1 / pair	Rim Cylinder
3 ea. / Leaf	Hinges
2 / pair	Closer
2 / pair	Stop
2 / pair	Kick Down Holder
1 ea	Removable mullion w/ keyed cylinder at head
2 / pair	Kick Plate
2 / pair	Exit Device with Lever Trim (Auto latching, lockable)
1 kit for entire assembly, incld'g mullion	Weather-stripping
2 / pair	Threshold
Continuous for entire frame width	Rain Drip
HARDWARE SET #2: Door 3-B	(Lobby to Vending Supply)
1 ea	Storeroom Lockset (free lever to Vending Supply side)
3 ea	Hinges
1 ea	Closer
1 ea	Kick Plate
1 ea	Gasketing
HARDWARE SET #3: Door 4-B	(Waiting to airfield – passenger use)
1 ea	Rim Cylinder
3 ea	Hinges
1 ea	Closer
1 ea	Kick Plate
1 ea	Exit Device with Lever Trim (Auto latching, lockable)
1 ea	Gasketing
HARDWARE SET #4: Door 3-A	(Vending Supply to Baggage Handling)
1 ea	Storeroom Lockset (free lever to Vending Supply side)
3 ea	Hinges
1 ea	Wall Stop
1 ea	Kick down holder
HARDWARE SET #5: Door 1-A	(Check-In to Baggage Handling)
1 ea	Classroom Lockset (keyway to Check-In side)
3 ea	Hinges
1 ea	Closer
1 ea	Wall Stop
1 ea	Kick Down Holder
1 ea	Kick Plate
1 ea	Gasketing
HARDWARE SET #6: Doors 6-A, 8-A	(Women, Men)
3 ea	Hinges
1 ea	Closer
1 ea	Wall Stop
1 ea	Kick Down Holder
1 ea	Kick Plate
1 ea	Push / Pull Plate
1 ea	Sound-stripping

HARDWARE SET #7: Door 7-A	(Janitor)
1 ea	Storeroom Lockset
3 ea	Hinges
1 ea	Wall Stop
1 ea	Weather-stripping
1 ea	Kick Plate
HARDWARE SET #8: Door 5-B	(Lobby to AARF)
1 ea	Office Lockset (keyway to AARF)
3 ea	Hinges
1 ea	Closer
1 ea	Wall Stop
1 ea	Kick Plate
1 ea	Gasketing
HARDWARE SET #9: Door 4-A	(Waiting to airfield – staff use)
3 ea	Hinges
1 ea	Double cylinder
1 ea	Closer
1 ea	Wall Stop
1 ea	Kick Down Holder
1 ea	Kick Plate
2 ea	Pull Plate
1 ea	Weather-stripping
1 ea	Rain drip

SECTION 09 2216 – NON STRUCTURAL METAL FRAMING

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following:
   1. Steel studs and tracks.
   2. Furring channels.
   3. Anchors and fasteners.

1.2 RELATED SECTIONS

A. Section 06 1000 - Rough Carpentry

B. Sections 0 72100 – Insulation

C. Section 09 2900 – Gypsum Board

1.3 REFERENCES

A. ASTM C645: Non-Load (Axial) Bearing Steel Studs, Runners (Tracks), and Rigid Furring Channels for Screw Application of Gypsum Board.

B. ASTM C754: Installation of Steel Framing Members to Receive Screw Attached Gypsum Board.

1.4 SUBMITTALS

A. Submit the following in accordance with Section 013300 “Submittal Procedures”.
   1. List of proposed products and manufacturer’s product data for each product.
   2. Fire rating test designation for each fire rating required for each assembly.
   3. Manufacturer's installation instructions.
   4. Manufacturer’s standard size sample for each product.

1.5 QUALITY ASSURANCE

A. Thickness of steel as specified is the minimum uncoated steel thickness.

B. “Bottom of Deck” refers to the underside of structure overhead and may be either the underside of the floor or roof construction.

C. Where fire rated construction is required for walls, columns, beams, and floor-ceiling assemblies, the construction shall be identical to that used in fire rating test assemblies.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and provide storage for products in accordance with the manufacturer’s recommendations and the requirements of ASTM C754.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Dietrich Industries – Denver, CO; (303) 289-4092
   2. Phillips Manufacturing Company – Phoenix, AZ; (602) 253-9320
   3. Scafco Corporation – Boise, ID; (208) 323-4901
   4. Other manufacturers as submitted and approved in accordance with Section 016200 “Product Options”.

2. 2 FRAMING MATERIALS

A. Protect steel studs, tracks, and rigid furring channels with not less than G60 galvanizing per ASTM A 525.

2.3 STEEL STUDS AND TRACKS

A. Use ASTM A 525 steel and comply with the requirements of ASTM C 645 for rolled formed, channel type, galvanized sheet steel studs and tracks.
   1. Studs shall be 1-5/8”, 2-1/2”, 3-5/8”, 6” or other size as indicated on drawings.
   2. Stud gage shall be as recommended by the manufacturer for length and application.
   3. Studs shall be in one piece.
   4. Tracks shall be same gage and thickness as studs.

B. Provide not less than two cutouts in web of each stud, approximately 12 inches from each end, and intermediate cutouts at approximately 24 inches on center.

2.4 FURRING CHANNELS

A. Furring channels shall be rolled formed, galvanized sheet steel complying with ASTM C 645 and as follows:
   1. 1/2 inch resilient, hat shaped channels.
   2. 7/8 inch rigid, ‘Z’ shaped channels.
   3. 1-1/2 inch rigid, ‘Z’ shaped channels.

2.5 ANCHORS AND FASTENERS

A. Anchors and fasteners shall comply with applicable ASTM requirements.

B. Power actuated fasteners shall be as recommended by the manufacturer of the type, class and length as required to resist twice the imposed loads; style suitable for the application.

C. Fasteners for steel studs thicker than 20 gage shall be steel drill screws of size and type recommended by the manufacturer.

PART 3 – EXECUTION

3.1 METAL STUD INSTALLATION

A. Install studs in accordance with ASTM C754 and manufacturer's written installation instructions.
   1. Space studs not more than 16 inches on center.
   2. Install double studs at door frame jambs and at other openings.
      a. At door head height, install a runner section between door jamb studs and adjacent stud.

3. Extend studs to bottom of deck for fire rated partitions, smoke partitions and shafts, sound control partitions, and any other partitions indicated on drawings.
    a. When studs are to be extended to bottom of deck, cut studs 1/4 inch to 3/8 inch less than distance from floor to underside of structure overhead.
    b. At bottom of deck, form a slip joint with double track to allow for building movement.
    c. Stop gypsum board short of deck and seal with back rod and sealant.

4. When studs terminate above suspended ceilings, provide bracing or extend studs to underside of structure overhead.
5. Form control joints with double studs spaced 1/2 inch apart.

B. Chase wall partitions:
1. Locate cross braces for chase wall partitions to permit the installation of pipes, conduits, carriers, and similar items.
2. Studs or tracks used as cross bracing shall be not less than 2-1/2 inches wide.

C. Install studs of the following gages:
1. Stud gage as indicated on structural drawings.
2. Partitions: Stud gage as recommended by the manufacturer for length and application.
3. Partition corners and end of free standing partitions: 20 gage.
4. Double jambs at door and other openings: 20 gage studs placed back to back.

D. Fasten studs as follows:
1. Fasten studs to adjacent track flange at intersections, corners, and jambs with two screws through each end of each stud and track flange, or by use of metal lock fastener tool.
2. Do not fasten studs to top track when studs extend to bottom of deck.
3. Fasten back to back studs together at not less than 24 inches on center, staggered along webs.
4. Studs fastened flange to flange shall have splice plates on both sides screwed to each stud.
    a. Splice plate size and spacing shall be as recommended by the manufacturer.

E. Blocking:
1. Provide for attachment and support of plumbing fixtures, electrical outlets, and other items supported by metal framed construction.
    a. Provide additional studs where required. Install metal backing plates or special metal shapes as required and securely fasten to metal studs.

2. Screw wood blocking to studs for support of handrail brackets, wall-hung casework, door stops, toilet partitions, urinal screens, wall guards, toilet accessories and other components in accordance with Section 06 1000 “Rough Carpentry”.

3.2 FURRING CHANNEL INSTALLATION

A. Erect furring channels vertically utilizing size as indicated on drawings.

B. Space at 16 inches on center maximum and not more than 3 inches from internal and external corners.

C. Secure flanges of furring channels at 24 inches maximum.

3.3 ERECTION TOLERANCES

A. Plumb and align vertical members within 1/8 inch.

B. Level or align ceilings within 1/8 inch.

C. Fastening surface for application of subsequent materials shall not vary more than 1/8 inch from the layout line.

END OF SECTION 09 2216 – NON STRUCTURAL METAL FRAMING

SECTION 09 2400 - PLASTERING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Fiber reinforced Portland cement plaster base coat.
   1. Pre-mixed, fiber reinforced Portland cement plaster base coats applied over gypsum sheathing or CMU substrates.

B. Related sections:
   1. Section 04 20 00 Unit Masonry
   2. Section 07 50 00 Membrane Roofing
   3. Section 07 62 00 Sheet Metal Flashing and Trim
   4. Section 07 92 00 Joint Sealants
   5. Section 08 40 00 Entrances, Storefronts, and Curtain Walls

1.2 REFERENCES

A. ASTM C150 - Portland Cement.

B. ASTM C206 - Finishing Hydrated Lime.

C. ASTM C897 - Aggregate for Job-Mixed Portland Cement-Based Plasters.

D. ASTM C926 - Application of Portland Cement-Based Plaster.

E. Portland Cement Association - PCA Plaster Manual.

1.3 SUBMITTALS

A. Provide in accordance with Section 013300 - Submittal Procedures:
   1. List of proposed products and product data.
   2. Manufacturer's recommended installation instructions.

1.04 STORAGE

A. Store materials off ground, under cover, and away from damp surfaces. Keep dry.

B. Remove wet or deteriorated materials from site.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Cold weather:
   1. Do not use frozen materials in mixes.
   2. Do not apply plaster to frozen surfaces or surfaces containing frost.
   3. Do not apply plaster when substrate or ambient air temperature is less than 40 degrees F nor when temperature is forecast to be less than 40 degrees F within a 24 hour period following application.

B. Hot weather:
   1. Protect plaster from uneven and excessive evaporation during hot, dry weather.
   2. Do not apply cement plaster when substrate or ambient temperature is above 100 degree F.
   3. Maintain minimum ambient temperature of 45 degrees F during and for 24 hours after application. Construct temporary heated enclosure as required to maintain temperature.

4. Seal stucco and cmu terminations and accessory butt joints with appropriate sealant. Seal all penetrations through the stucco and cmu wall assembly with appropriate sealant, or backer rod and sealant, as dictated by joint type.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Plaster materials:
   1. El Rey Stucco Company, Inc., Albuquerque, New Mexico; 505-873-1180
   2. Dryvit Systems, Inc., West Warwick, RI; 800-556-7752
   3. Senergy, Division of BASF, Jacksonville, Florida; 800-221-9255
   4. Sto Corp., Atlanta, Georgia; 800-221-2397

2.2 PLASTER MATERIALS

A. Water: Clean, fresh, potable, and free from minerals and impurities which can affect plaster.

B. Base coat material: Pre-mixed, fiber reinforced, pre-sanded stucco base coat consisting of sand, Portland cement, lime, and alkali resistant glass and acrylic fibers to be field mixed with water for scratch coat; Fiber-47 Pre-Sanded Concentrate as manufactured by El Rey Stucco Company, Inc.

C. Primers
   1. Alkaline Resistant Primer for freshly placed, i.e. no older than 4 days, stucco surfaces
      a. Resistant to alkaline surfaces with pH of 13 or less
      b. Surface Burning, ASTM E 84: Flame Spread less than 25, Smoke Developed less than 450, Class A building material
      c. VOC: less than 50 g/L, compliant with South Coast AQMD Rule 1113 for architectural coatings

D. Finishes
   1. Lotus-Effect Technology Finish (Basis of Design: Stolit Lotusan)
      a. Super-hydrophobic textured finish with Lotus-Effect Technology
      b. Accelerated Weathering, ASTM G 154: 2500 hours, no blistering, checking cracking, crazing, or other deleterious effects
      c. Water Vapor Permeability, ASTM E 96, Method B: > 30 perms [(1172 ng/(Pa·s·m^2)]
      d. Surface Burning, ASTM E 84: Flame Spread less than 25, Smoke Developed less than 450, Class A building material
      e. VOC: less then 50 g/L, compliant with South Coast AQMD Rule 1113 for architectural coatings
      f. Integrally colored.

2.3 MIXES

A. Mix cement plaster in accordance with ASTM C926 and manufacturer's written instructions.

B. Size batches for complete use within 1 hour after mixing.

C. Do not use frozen, caked, or lumpy materials.

D. Scratch coat: Mix pre-sanded base coat material with water in accordance with manufacturer's recommended proportions.

E. Mechanically mix. Do not hand mix.
   1. Clean mixer of set or hardened materials before loading new batch.
   2. Maintain mixer in continuous operation while adding materials.

3. Withhold 10 percent water until mixing is nearly complete then add as needed to produce desired working consistency.

F. Do not add any unspecified admixture or other substance to plaster mixes without written approval of Architect.

PART 3 - EXECUTION

3.1 GENERAL PLASTERING REQUIREMENTS

A. Apply plaster in accordance with ASTM C926, manufacturer's instructions and recommendations, and applicable codes.

B. Inspect surfaces for algae, chalkiness, dirt, dust, grease, oil, mildew, mold, efflorescence, or any other foreign or potentially deleterious substance.

C. Remove surface contamination prior to placing plaster including but not limited to chemical cleaners such as trisodium phosphate detergent, paint strippers such as Peel Away.

D. Remove existing masonry coatings using mechanical methods such as waterblasting, sandblasting, shotblasting, and wire brushing. Notify Architect of any potentially weak surface conditions prior to proceeding with plaster work.

E. Fill all masonry joints with cement plaster to be flush with thickness of plaster applied over masonry.

F. Interrupt or delay plaster application only at junctions of plaster planes, at openings, or at control joints.

3.2 BASE COAT APPLICATION

A. Scratch coat:

1. Apply to a minimum thickness of 3/8 inch using sufficient trowel pressure to key plaster into metal lath or to create bond with CMU or concrete substrate.

B. Moist cure scratch coat:

1. Begin curing process immediately after installation and do not allow curing process to stop prior to complete curing of base coat.

2. Apply fog spray of clear water with sufficiently frequent applications to maintain plaster uniformly moist for a minimum of 48 hours following application.

3.3 PRIMER INSTALLATION

A. StoPrime Hot (Basis of Design): Moist cure stucco for a minimum of 48 hours. Allow stucco to dry an additional 48 hours, then apply primer evenly with brush, roller or proper spray equipment over the clean, dry stucco and foam build-outs, and allow to dry. Final age of primed stucco application must be minimum 7 days before application of finish.

3.4 FINISH INSTALLATION

A. Apply finish to minimium 7 day old primered stucco by spraying or troweling with a stainless steel trowel.
   1. Avoid application in direct sunlight.
   2. Apply finish in a continuous application, and work a wet edge towards the unfinished wall area. Work to an architectural break in the wall before stopping to avoid cold joints.

3. Weather conditions affect application and drying time. Hot or dry conditions limit working time and accelerate drying. Adjustments in the scheduling of work may be required to achieve desired results; cool or damp conditions extend working time and retard drying and may require added measures of protection against wind, dust, dirt, rain and freezing. Adjust work schedule and provide protection.
4. Float “R” (rilled or swirl texture) finishes with a plastic float to achieve their rilled texture
5. Do not install separate batches of finish side-by-side.
6. Do not apply finish into or over sealant joints. Apply finish to outside face of wall only.
7. Do not apply finish over irregular or unprepared surfaces, or surfaces not in compliance with the requirements of the project specifications.
8. Do not install finish over high pH (> 10) stucco surfaces or surfaces that have not been fully cured.

3.3 PROTECTION

A. Provide protection of installed materials from water infiltration into or behind them.

B. Provide protection of installed stucco from dust, dirt, precipitation, and freezing.

C. Provide protection of installed primer and finish from dust, dirt, precipitation, freezing and continuous high humidity until fully dry.

D. Provide sealant and backer material at stucco terminations and at fixture penetrations through the stucco to protect against air, water and insect infiltration. Provide weeps at floor lines, window and door heads, and other areas to conduct water to the exterior.

3.4 CLEANING AND ACCEPTANCE

A. Remove protective materials from perimeter trim and adjacent surfaces.

B. Clean adjacent surfaces affected by work.

C. Remove all residue and excess items from site.

D. Clean and maintain the stucco finish for a fresh appearance and to prevent water entry into and behind the stucco. Repair cracks, impact damage, spalls or delamination promptly.

E. Maintain adjacent components of construction such as sealants, windows, doors, and flashing, to prevent water entry into the wall assembly.

END OF SECTION 092400 – PLASTERING

SECTION 09 2900 - GYPSUM BOARD

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following:
   1. Drywall Suspension System
   2. Gypsum Board
   3. Accessories
   4. Texture Finish

1.2 RELATED SECTIONS

A. Section 072500 – Weather Barriers

B. Section 079200 – Joint Sealants

C. Section 092216 – Non Structural Metal Framing

D. Section 099100 – Painting

1.3 REFERENCES

A. ASTM C36: Gypsum Wallboard.

B. ASTM C79: Gypsum Sheathing Board.

C. ASTM C475: Joint Treatment Materials for Gypsum Wallboard Construction.

D. ASTM C630: Water Resistant Gypsum Backing Board.

E. ASTM E84: Test Method for Surface Burning Characteristics of Building Materials.

F. GA-201: Gypsum Board for Walls and Ceilings.

G. GA-216: Recommended Specifications for the Application and Finishing of Gypsum Board.

H. GA-505: Gypsum Board Terminology Standard.

1.4 SUBMITTALS

A. Submit the following in accordance with Section 01 3300 “Submittal Procedures”.
   1. List of proposed products and manufacturer’s product data for each product.
   2. Manufacturer's installation instructions.
   3. Manufacturer’s standard size sample for each product.

1.5 QUALITY ASSURANCE

A. Where gypsum drywall systems with fire resistance ratings are indicated, provide materials and installations which are identical to assemblies tested per ASTM E119 by fire testing laboratories acceptable to authorities having jurisdiction.
   1. Provide fire resistance rated assemblies identical to those indicated by reference as follows:

a. File numbers in Gypsum Association “Fire Resistance Design Manual”.
b. Design designations in UL “Fire Resistance Directory”.
c. Listing of other testing agencies acceptable to authorities having jurisdiction.

B. Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum board products.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside, under cover, and in a manner to keep materials dry and protected from weather, direct sunlight, surface contamination, and damage from construction traffic and other causes.

C. Handle gypsum boards to prevent damage to edges, ends or surfaces.

D. Protect metal corner beads and trim from being bent or damaged.

1.7 PROJECT CONDITIONS

A. Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer for environmental conditions before, during, and after application of gypsum board.

B. When ambient outdoor temperatures are below 55 degrees F maintain continuous, uniform, comfortable building working temperatures of not less than 55 degrees F for a minimum period of 48 hours prior to, during, and following application of gypsum board and joint treatment materials or bonding of adhesives.

C. Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material prior to its application.
1. Avoid drafts during dry, hot weather to prevent too rapid drying.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
1. American Gypsum - Albuquerque, New Mexico; (505) 823-2022.
2. Georgia Pacific Gypsum Corporation - Atlanta, Georgia; (800) 284-5347.
3. Gold Bond Building Products, National Gypsum Company - Charlotte, North Carolina; (704) 365-7300.
4. Louisiana-Pacific - Portland, Oregon; (800) 547-6331.
5. United States Gypsum Company - Chicago, Illinois; (312) 606-5756.
6. Other manufacturers as submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 DRYWALL SUSPENSION SYSTEM

A. Provide commercial quality, cold rolled steel, hot dipped galvanized finish, drywall suspension system complying with the requirements of ASTM C635.
1. Suspension members shall be fire rated, heavy duty classification, 1-1/2 inch high, with 1-1/2 inch wide knurled face.
a. Main tees shall be 144 inches long with integral reversible splice.
b. Cross tees shall be 48 inches long with quick release ends which provide positive

locking.
c. Provide accessory cross tees, transition clips, and splice clips.

2.3 GYPSUM BOARD

A. Gypsum board materials:
1. Regular Gypsum Board per ASTM C36.
2. Fire Rated Gypsum Board: Type 'X', UL rated, fire resistive type wallboard per ASTMC36.
3. Moisture Resistant Gypsum Board: M-Bloc with added fungicides as manufactured by American Gypsum.
a. Regular and Type 'X' fire resistive type.

4. Thickness: 5/8 inch, unless otherwise indicated.
a. For curved partitions provide multiple layers of 1/4 inch and 3/8 inch thick gypsum board to equal thickness of adjacent flat panels.

5. Board Size: 4 feet wide in maximum permissible length to minimize end-to-end butt joints.
6. Ends: Square cut, tapered with beveled edges.

2.4 ACCESSORIES

A. Anchors and Fasteners: Provide anchors, fasteners, and screws as recommended by the manufacturer for applicable installations.
1. Provide adhesive specifically recommended for laminating gypsum board when conditions require.

B. Trim materials shall be formed of galvanized steel and beaded for concealment of flanges in joint compound.
1. Corner beads shall be galvanized steel with 1-1/4 inch knurled flanges.
2. Edge trim beads shall be type recommended for the application.
3. Control joints shall be one piece continuous length.

C. Joint Treatment Materials: Provide joint treatment materials as recommended by the manufacturer for applicable installations, and complying with ASTM C475 including reinforcing tape, joint compound, adhesive, water, and fasteners.

D. Textured Finish: Latex based texturing material.

PART 3 – EXECUTION

3.1 DRYWALL SUSPENSION SYSTEM INSTALLATION

A. Install drywall suspension system in accordance with ASTM C636, CISCA installation standards, and manufacturer's written installation instructions.
1. Space main tees, cross tees, and hanger wires at intervals recommended by the manufacturer.
2. Do not support hanger wires from mechanical, plumbing, fire protection, electrical or similar equipment and piping occurring above ceiling.
3. Provide bracing of the drywall suspension system to insure stability and structural performance during and after drywall attachment.

3.2 GYPSUM BOARD INSTALLATION

A. Install gypsum board at the following locations:
1. Regular gypsum board at partition and ceiling locations unless otherwise indicated.

2. Fire rated gypsum board at fire rated partitions and ceilings.
3. Moisture resistant gypsum board at Toilets and other wet areas.
   a. Moisture Resistant Type 'X' at moisture resistant fire rated partitions and ceilings.

B. Install gypsum board in accordance with GA-201, GA-216, and manufacturer's written installation instructions.
1. Do not install imperfect, damaged, or damp boards.
2. Do not force boards into place.
3. Install exposed gypsum board with face side out.

C. Located exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 1'-0" in alternate courses of board.
1. Install wall boards vertically to avoid end-butt joints wherever possible.
2. At high walls, install boards horizontally with end joints staggered over studs.

D. Locate either edge or end joints over framing.
1. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards.
2. Position boards so that like edges abut; tapered edges against tapered edges, and mill-cut or field-cut ends against mill-cut or field-cut ends.
3. Do not place tapered edges against cut edges or ends.
4. Stagger vertical joints over different studs on opposite sides of partitions.

E. Form control joints and expansion joints with space between edges of boards, prepared to receive trim accessories.

F. Fasten gypsum board to framing spacing fasteners as recommended by the manufacturer.
1. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.

G. Isolate perimeter of non load bearing gypsum board partitions at structural abutments.
1. Provide 1/4 inch to 1/2 inch space, trim edge, and seal joint with acoustical sealant.

H. Where sound insulation is installed, seal the perimeter, control and expansion joints, and openings and penetrations with a continuous bead of acoustical sealant at each face.
1. Comply with ASTM C919 and manufacturer's recommendations for location of beads and close off sound-flanking paths around or through the work, including sealing of partitions above acoustical ceilings.

I. Treat cut edges and holes in moisture resistant gypsum board with sealant.

J. Curved Partitions: Install multiple layers of gypsum board to match thickness of adjacent flat panels.
1. Moisten tension side of panel in accordance with the manufacturer's recommendations.
2. Place panels horizontally and securely attach to studs.
3. Minimize cutouts in curved panels and do not make cutouts until panels are thoroughly dry.

3.3 TRIM INSTALLATION

A. Install metal corner beads at external corners, edges of decorative ceiling and wall reveals, and other locations as detailed on drawings.

B. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed or where gypsum board abuts dissimilar materials.

C. Use longest practical lengths for corner beads and edge trim.

3.4 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840:
   1. Level 0: Temporary partitions and surfaces.
   2. Level 1: Wall areas above finished ceilings, whether accessible or not in the completed construction.
   3. Level 2: Backing board to receive tile finish.
   4. Level 4: Walls in utility spaces and ceilings to receive paint finish; walls exposed to public view to receive texture finish.
   5. Level 5: Walls exposed to public view to receive paint finish.

B. Tape, fill, and sand exposed joints, edges, and corners to produce a smooth surface ready to receive finishes.

C. Apply joint compound and sand trim flanges, penetrations, fastener heads, and other surface defects to produce a smooth surface ready to receive finishes.

D. Feather coats onto adjoining surfaces so that camber is maximum 1/32 inch.

E. All surfaces shall be dry mopped or cleaned with clean rags after sanding and prior to the application of the primer.

F. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated to achieve a flat and tool-mark free finish.

3.5 TEXTURE FINISH

A. Finish: All interior gypsum board walls shall receive a texture finish.
   1. For textured walls exposed to public view, walls shall receive a Level 4 Finish with Texture.

B. Priming: Prior to texturing, all gypsum board interior walls shall have spray-applied primer as recommended by the gypsum board manufacturer and backrolled.

C. Application: Spray apply texture coating in accordance with the manufacturer's written installation instructions.

D. Texture: To match approved sample.

3.6 TOLERANCES

A. Maximum variation from true flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION 09 2900 - GYPSUM BOARD

THIS PAGE INTENTIONALLY BLANK

SECTION 09 3000 - TILE

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. The extent of tile is shown on drawings and includes the following:

1. Ceramic Tile.

2. Setting Materials and Grout.

3. Accessories.

1.2 RELAED SECTIONS

A. Section 03 3000 – Cast-In-Place Concrete.

B. Section 09 2900 – Gypsum Board.

1.3 REFERENCES

A. ANSI A118.3: Chemical Resistant, Water Cleanable Tile-Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive.

B. ANSI A118.4: Latex-Portland Cement Mortar.

C. ANSI A118.6: Ceramic Tile Grouts.

D. ANSI A137.1: Standard Specification for Ceramic Tile.

E. TCA (Tile Council of America): Handbook for Ceramic Tile Installation.

1.4 SUBMITTALS

A. Provide the following in accordance with Section 013300 “Submittal Procedures”.
   1. Submit manufacturer’s product data and installation instructions for each type of tile product indicated.
   2. Furnish grade certificate signed by tile manufacturer and subcontractor confirming compliance with specified requirements.
   3. Provide manufacturer’s standard size samples indicating full range of colors for tile and grout color selections by Architect.
      a. Prior to ordering tile materials submit full size samples for each tile, color, and pattern selected by the Architect for final approval.

B. Field Sample: Using same materials and techniques for tile installations, provide tile field samples as follows:
   1. Install tile to one floor area and one wall area each 4 square feet minimum.
   2. Grout joints and clean.
   3. Approved samples may remain as part of work and will be used as a basis for acceptance of remaining tile installation.

a. Unacceptable samples shall be removed.

1.5 QUALITY ASSURANCE

A. Obtain each variety of tile from a single source, providing products of consistent quality in appearance and physical properties, meeting the specified requirements.

B. Comply with ANSI A137.1 “American National Standard Specifications for Ceramic Tile” for types, compositions, and grades of ceramic tile indicated.

C. Installation shall comply with the requirements of the TCA Handbook for Ceramic Tile Installation.

D. Installer shall be a company specializing in tile installations with a minimum of 5 years successful experience.

E. Low Emitting Materials: The volatile organic compound (VOC) content of sealants shall not exceed the limits defined in Rule #1168, “Adhesive and Sealant Applications” of SCAQMD.

1.6 PROJECT CONDITIONS

A. Protect adhesives from freezing or overheating in accordance with the manufacturer's instructions.

B. Do not install adhesives in closed, unventilated rooms.

C. Maintain temperature above 50 degrees F in tiled areas during installation and for 7 days after completion.
   1. Increase minimum temperature as required by referenced installation standard or manufacturer’s recommendations.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. American Olean Tile Company – Dallas, TX; (888) 268-8453
   2. Crossville, Inc. – Crossville, TN; (931) 484-2110
   3. Daltile Corporation - Dallas, Texas; (800) 933-8453
   4. Laticrete International, Inc. - Grand Prairie, TX; (800) 243-4788.
      a. Setting materials and grout.
      b. Anti-fracture membrane.
      c. Sealants and grout sealer.

   5. Other manufacturers as submitted and approved in accordance with Section 01 6200 “Product Options”.
      a. Architect reserves the right to reject proposed substitutions on basis of color and pattern compatibility even when fabrication and materials are equivalent.

2.2 CERAMIC TILE

A. Ceramic Floor and Wall Tile for use at restrooms: Volume 1.0 Glazed Porcelain as manufactured by Daltile Corporation.

1. Size: As follows and as indicated on Drawings.
   a. Floor Tile: 12 inch x 12 inch.
   b. Wall Tile: 12 inch x 12 inch.

2. Thickness: 5/16 inch.
3. Color: As selected by the Architect from the manufacturer's full range of colors.
   a. Allow for accent coloring as indicated on the drawings.
   b. If no pattern is indicated on the drawings allow 20 percent for accent coloring.

4. Edge: Cushioned, provide bullnose where exposed.
5. Grout Joint: 3/16 inch.
6. Water Absorption: Less than 0.5 percent in accordance with ASTM C373.
7. Breaking Strength: Greater than 350 pounds in accordance with ASTM C648.
8. Scratch Hardness: 8.0 minimum in accordance with MOHS.
9. Chemical Resistance: Resistant in accordance with ASTM C650.
10. Interior Coefficient of Friction: Greater than 0.42 Wet; in accordance with ASMKI A137.1-2012, Section 9.6.
11. Abrasion Resistance: 4 minimum in accordance with ASTM C1027.
12. Base: 6 inch x 12 inch cove base.
13. Trim: Provide shapes as project conditions require including bullnose, bullnose corner, cove base corner, and corner trim.

B. Ceramic Wall Tile Accent: Mosaic Color Body Porcelain "Keystones" as manufactured by Daltile Corporation.
   1. Size: As follows and as indicated on Drawings.
      a. Accent Tile: 2 inch x 2 inch Mosaic.

   2. Thickness: 1/4 inch. Float to align with field tile.
   3. Color: As selected by the Architect from Price Groups 1, 2, 3, and 4.
      a. Allow for accent coloring as indicated on the drawings.
      b. If no pattern is indicated on the drawings allow 20 percent for accent coloring.

   4. Grout Joint: 1/8 inch approximately.
   5. Water Absorption: Less than 0.5 percent in accordance with ASTM C373.
   6. Breaking Strength: Greater than 300 pounds in accordance with ASTM C648.
   7. Chemical Resistance: Resistant in accordance with ASTM C650.

2.3 SETTING MATERIALS

A. Epoxy Mortar Bond Coat: Chemical resistant type conforming to ANSI A118.3.

B. Thinset Mortar: Latex portland cement mortar conforming to ANSI A118.4.

2.4 GROUT

A. Latex Portland Cement Grout: Cementitious, dry cure type with latex additives and resistant to shrinking and staining, complying with ANSI A118.4.

B. Colors: As selected by Architect from manufacturer's full range.

2.5 ACCESSORIES

A. Anti-Fracture Membrane: Blue 92 Anti-Fracture by Laticrete International, Inc.
   1. Two-part anti-fracture system shall be installed per the manufacturer's written installation instructions.

2. Anti-fracture membrane shall be used to cover all control and expansion joints in concrete floor slab.
3. Anti-fracture membrane shall be used to cover all hairline cracking within the concrete substrate.

B. Marble Thresholds:
1. Thresholds shall comply with ASTM C503 and hardness shall be a minimum of 10 per ASTM C241.
2. Size: 2 inches wide x 1/2 inch high or less x length as required.
3. Edges: Beveled at 1:2 slope.
4. Color: As selected by Architect from manufacturer's full range.

C. Sealant: Latasil Tile and Stone Sealant by Laticrete International, Inc.
1. One-part, mildew-resistant, silicone sealant formulated with fungicide, intended for sealing interior joints at ceramic tile and other nonporous substrates which are subject to in-service exposures of high humidity and temperature extremes.

D. Grout Sealer: Manufacturer's standard product for sealing grout joints which does not change color or appearance of grout.

PART 3 – EXECUTION

3.1 PREPARATION

A. Coordinate recessed and sloping floor areas to receive tile with Section 033000 "Cast-in-Place Concrete".

B. Coordinate placement of concrete slab control joints with installation of ceramic tile expansion joints.
1. Locate concrete control joints to minimize or eliminate requirement for expansion joints in ceramic tile installations.

C. Examine substrates and areas where tile will be installed for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.
2. Verify that installation of anchors, recessed frames, mechanical, plumbing, electrical, and similar work located in or behind tile has been completed.
3. Floors to be tiled shall fall within maximum variation of 1/4 inch in 10 feet.

D. Seal substrate surface cracks with filler.

E. Vacuum clean existing surfaces.

F. Do not proceed with tile installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Tile installations shall comply with the TCA Handbook for type of setting and grouting materials, installation methods, expansion control, and other applicable considerations.

B. Refer to drawings for tile patterns.
1. Layout tile work and center tile fields in both directions in each space or on each wall area.
2. Align joints when adjoining tiles on floor, base, walls, and trim are same size.
3. Adjust so as to minimize cuts and locate cuts so as to be least conspicuous.
4. Provide uniform joint widths.

a. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.

5. Form corners and bases neatly and accurately.

C. Extend tile into recesses and under or behind equipment and fixtures to form a complete covering.
1. Terminate tile neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

D. Perform cutting and drilling of tile without marring visible surfaces.
1. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints.
2. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, or covers overlap tile.

E. Install tile in accordance with the appropriate TCA Handbook installation method:
1. Use TCA Method No. F112 for cast-in-place concrete floors:
a. Verify slope to floor drains before setting tile.
b. Thinset tile to concrete subfloor with latex portland cement mortar.
c. Grout tile joints with latex portland cement grout.

2. Use TCA Method No. W243 for gypsum board walls:
a. Thinset tile to wall with latex portland cement mortar.
b. Grout tile joints with latex portland cement grout.

3. Set thresholds in same type of setting bed as abutting tile.

F. Provide and locate expansion joints in ceramic floor tile at locations over all control joints in concrete floor slabs.
1. Construct in accordance with TCA Method No. EJ171:
a. Minimum width: Width of concrete control joint.
b. Install joint in mortar bed directly over concrete control joint.
c. Keep joint clean of grout, mortar, and other debris.
d. Install compressible backer rod and urethane sealant as specified in Section 07 9200 “Joint Sealants”.

G. Sound tile after setting and replace hollow sounding units.

H. Allow tile to set for a minimum of 48 hours prior to grouting.

I. Grout tile joints. Make joints watertight, without voids, cracks, or excess grout.

J. Seal all grout joints with sealer applied in accordance with the manufacturer's written installation instructions.

3.3 ADJUSTING AND CLEANING

A. Leave finished tile installations clean and free of cracked, chipped, broken, unbonded, and otherwise defective work.

B. Upon completion of tile placement and grouting, thoroughly clean and polish all tile surfaces so they are free of foreign matter.

3.4 PROTECTION

A. Limit foot and wheel traffic over finished floor surface.

B. Provide protection and maintain conditions in a manner that insures tile is without damage or deterioration at time of Substantial Completion.

3.5 EXTRA MATERIALS

A. Furnish Owner with extra materials that match products installed, packaged with protective covering for storage, and identified with labels clearly describing contents.
   1. 1 box for each 50 boxes or fraction thereof for each type, size, color, and pattern installed.

END OF SECTION 09 3000 - TILE

SECTION 09 5100 – LAY IN TILE CEILINGS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following lay-in ceiling tile and accessories:
   1. Suspension grid
   2. Acoustical tile
   3. Washable tile

1.2 RELATED SECTIONS

A. Section 09 2900 – Gypsum Board

1.3 REFERENCES

A. ASTM C635: Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

B. ASTM C636: Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

C. ASTM E580: Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint.

D. ASTM E1264: Classification of Acoustical Ceiling Products,

1.4 SUBMITTALS

A. Submit the following in accordance with Section 01 3300 “Submittal Procedures”.
   1. Product data for each acoustical ceiling product specified.
   2. Manufacturer’s installation instructions.
   3. Samples:
      a. 2 inch long section of suspension system main runner, cross tee, and edge trim.
      b. 4 inch x 4 inch minimum of each panel.

1.5 QUALITY ASSURANCE

A. Suspension grid components and installation shall comply with applicable requirements of Project Seismic Zone.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Armstrong World Industries, Inc. - Lancaster, Pennsylvania; (800) 233-3823.
   2. USG Company – Chicago, IL; (800) 950-3839
   3. Manufacturers of equivalent products submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 SUSPENSION GRID

A. Prelude XL as manufactured by Armstrong World Industries.
   1. Type: Exposed Tee System
   2. Grid Face: 15/16 inch
   3. Size: 1-11/16 inch main beams and cross tees
   4. Wall Molding: 7/8 inch flange x 7/8 inch high Angle Molding
   5. Color: As selected by Architect from the manufacturer's full range.
   6. Material: Hot dipped galvanized steel
   7. Load: Intermediate duty
   8. Durability: Humidity and corrosion resistant
   9. Fire Resistance: Non-rated
   10. Seismic Requirements: Refer to Structural Drawings for Seismic Category
   11. Accessories: Manufacturer's standard accessories as field conditions require.

2.3 ACOUSTICAL TILE

A. Fine Fissured Square Lay-In as manufactured by Armstrong World Industries.
   1. Size: 2'-0" x 2'-0" x 5/8" and 2'-0" x 4'-0" x 5/8"
   2. Edge Profile: 15/16 inch square lay-in
   3. Surface: Non directional, medium texture
   4. Acoustics: NRC 0.55; CAC 33
   5. Material: Wet-formed mineral fiber
   6. Surface Finish: Factory applied latex paint
   7. Color: White
   8. Fire Rating: Class A
   9. Light Reflectance: 0.85
   10. Sag Resistance: HumiGuard Plus
   11. Anti-Microbial: BioBlock Plus
   12. Durability: Standard
   13. Fire Performance: Flame Spread Index 25 or less; Smoke Developed Index 50 or less
   14. ASTM E 1264 Classification: Type III, Form 2, Pattern C E, Fire Class A.
   15. Suspension Grid: Prelude XL

2.4 WASHABLE TILE

A. Clean Room VL as manufactured by Armstrong World Industries.
   1. Size: 2'-0" x 2'-0" x 5/8" and 2'-0" x 4'-0" x 5/8"
   2. Edge Profile: 15/16 inch square lay-in
   3. Surface: Un-perforated, non-directional, smooth texture
   4. Acoustics: NRC 0.55; CAC 35
   5. Material: Wet-formed mineral fiber
   6. Surface Finish: Vinyl-faced membrane
   7. Color: White
   8. Fire Rating: Fire Guard
   9. Light Reflectance: 0.78
   10. Sag Resistance: "Humiguard Plus"
   11. Anti-Microbial: "BioBlock Plus"
   12. Durability: Washable, scrubbable, water repellant, soil resistant
   13. Fire Performance: Flame Spread Index 25 or less; Smoke Developed Index 50 or less
   14. ASTM E 1264 Classification: Type IV, Form 2, Pattern C E, Fire Class A
   15. Suspension Grid: "Prelude XL"

PART 3 – EXECUTION

3.1 PREPARATION

A. Do not install acoustical ceilings until building is enclosed, minimum temperature is 60 degrees F, dust generating activities have terminated, and overhead work is completed, tested and approved.

B. Verify that layout of hangers will not interfere with other work.

3.2 SUSPENSION SYSTEM INSTALLATION

A. Locate system on room axis according to Reflected Ceiling Plan.

B. Install grid systems in accordance with ASTM C636 and ASTM E580.

C. Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by or penetrating through ceilings, including light fixtures, HVAC equipment, fire suppression system components, and partition system.

D. Hang system independent of walls, columns, ducts, pipes, and conduit.
   1. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

E. Where ducts or other equipment prevent regular spacing of hangers, reinforce the nearest affected hangers and related grid members.

F. Loading:
   1. Do not support other building components on main runners and cross tees if weight causes total dead load to exceed deflection capability.
   2. Support light fixture loads by supplementary hangers.
   3. Do not eccentrically load system or produce rotation of runners.

G. Edge molding: Install at intersection of ceiling and vertical surfaces, using longest practical lengths.
   1. Miter corners.
   2. Provide edge moldings at junctions with other interruptions.

3.3 PANEL INSTALLATION

A. Install ceiling panels in locations as indicated on Reflecting Ceiling Plan and as specified herein.

B. Fit acoustical panels in place, free from damaged edges or other defects. Install level, in uniform plane, and free from twist, warp, and dents.

C. Lay directional patterned units with fissures running in one direction.

D. Cut panels to fit irregular grid and perimeter edge trim.

E. Install hold-down clips to retain panels tight to grid system within 20 feet of exterior doors.

3.4 TOLERANCES

A. Variation from flat and level surface: 1/8 inch in 10 feet.

3.5 CLEANING

A. Vacuum or brush grid and panels to remove dust and loose dirt.

B. Clean grid and panels of all marks, smudges, and clinging dirt with moist cloth and mild soap.

C. Replace scratched sections of grid and soiled or stained panels.

D. Remove cut sections of grid, panel scraps, wire clippings, and all other debris from space above ceiling.

3.6 EXTRA MATERIALS

A. Provide in accordance with Section 01 7700 “Closeout Procedures”.
   1. Three (3) boxes of each type of ceiling panel.

END OF SECTION 09 5100 – LAY IN TILE CEILINGS

SECTION 09 6500 - RESILIENT FLOORING

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes vinyl composition tile as specified herein and shown on the drawings:

1.2 RELATED SECTIONS

A. Section 09 6513 – Resilient Wall Base and Accessories.

1.3 REFERENCES

A. ASTM E84: Surface Burning Characteristics of Building Materials.

B. ASTM F1066: Vinyl Composition Floor Tile.

C. FS L-F-475: Floor Covering, Vinyl Surface (Tile and Roll), with Backing.

1.4 SUBMITTALS

A. Submit the following in accordance with Section 01 3300 “Submittal Procedures”:
   1. Product data for each proposed product.
   2. Manufacturer’s installation and maintenance instructions.
   3. Full set of manufacturer’s standard size samples for Architect’s color selection.

1.5 QUALITY ASSURANCE

A. Provide flooring, adhesive, and other products with low or zero volatile organic compound (VOC) content and containing no hazardous or carcinogenic ingredients.

B. Regulatory requirements: Comply with current applicable regulations of the Environmental Protection Agency (EPA) as related to volatile organic compound content of products.

C. Conform to applicable codes for flame, fuel, and smoke rating requirements of resilient flooring in accordance with ASTM E84.

1.6 PROJECT CONDITIONS

A. Store materials for 48 hours prior to installation in area of installation to achieve temperature stability.

B. Maintain space to receive flooring at 65 degrees F minimum for 48 hours prior to, during, and 48 hours after installation.

C. Ventilation: Do not install flooring in enclosed building spaces without adequate ventilation.
   1. Provide ventilation to remove volatile organic compound (VOC) out-gasses emitting from sheet flooring and adhesive during storage, installation, and after installation as required to minimize contamination of building interior spaces.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Armstrong World Industries, Inc. - Lancaster, Pennsylvania; (800) 233-3823.
   2. Azrock Industries, Inc. - Florence, Alabama; (205) 766-0234.
   3. Mannington Commercial - Calhoun, Georgia; (800) 241-2262.
   4. Other manufacturers as submitted and approved in accordance with Section 016200 “Product Options”.
      a. The Architect reserves the right to reject proposed substitutions on the basis of color and pattern compatibility even though fabrication and materials are equivalent.

2.2 VINYL COMPOSITION FLOOR TILE (VCT)

A. Type: Armstrong “Standard Excelon” vinyl composition tile complying with ASTM F1066.

B. Size: 12 inches x 12 inches x 1/8 inch thick.

C. Colors: As selected by the Architect from the manufacturer's full range of colors and patterns.
   1. Allow for accent coloring as indicated on the drawings.
   2. If no pattern is indicated on the drawings allow 20 percent of total tile area for accent coloring.

2.3 ACCESSORIES

A. Subfloor Filler: White premix latex type as recommended by the flooring material manufacturer.

B. Primer: Type as recommended by the flooring material manufacturer.

C. Adhesive: Waterproof type as recommended by the flooring material manufacturer.

D. Sealer and Wax: Type as recommended by the flooring material manufacturer.

PART 3 – EXECUTION

3.1 PREPARATION

A. Verify that substrate surfaces are smooth, flat, and free from irregularities.

B. Fill low spots, cracks, joints, holes, and other defects, with floor filler.
   1. Apply, trowel, and float filler to leave smooth, flat, hard surface.
   2. Prohibit traffic until cured.

C. Vacuum floor surfaces.

3.2 VINYL COMPOSITION FLOOR TILE INSTALLATION

A. Install VCT per the manufacturer’s recommendations and written installation instructions.

B. Install tile in patterns as shown on Drawings using colors as selected by the Architect.
   1. Mix tile from cartons to ensure shade variations are consistent.

C. Layout tile pattern from center of room such that tiles at perimeter are wider than 6 inches, or as indicated on Drawings.
   1. Install tile with pattern grain alternating with adjacent tiles to produce basket weave pattern.

D. Spread only enough adhesive to permit installation of flooring materials before initial set.

E. Set flooring in place and press with heavy roller to attain full adhesion.

F. Scribe flooring to walls, columns, cabinets, and other appurtenances to produce tight joints.

G. Install edge guards at unprotected or exposed edges and transition strips at intersections with other floor finishes using maximum possible lengths.

H. Locate transitions to other floor coverings at doorways such that joint is concealed when door is closed.

3.3 CLEANING AND PROTECTION

A. Prohibit traffic on floor for 48 hours after installation.

B. Remove excess adhesive from floor, base, and wall.

C. After floors have set sufficiently to properly bond, wash with neutral cleaner, wax, and buff thoroughly.

D. Provide non-staining paper pathway taped to resilient flooring as protection from construction traffic.

3.4 EXTRA MATERIALS

A. Provide in accordance with Section 017700 “Closeout Procedures”.
   1. One box for each 50 boxes or fraction thereof for each type, color, pattern, and size installed.

END OF SECTION 09 6500 - RESILIENT FLOORING

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 09 6513 - RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This Section includes the following as specified herein and shown on the drawings:
   1. Resilient wall base.
   2. Resilient molding.
   3. Installation materials.

1.2 SUBMITTALS

A. Submit the following in accordance with Section 01 3300 “Submittal Procedures”
   1. Product Data: Submit manufacturer’s written product data for each product indicated.
   2. Samples: For each type of product indicated provide manufacturer's standard-size samples but not less than 12 inches long, of each resilient product color, texture, and pattern required.

1.3 QUALITY ASSURANCE

A. Low Emitting Materials: The volatile organic compound (VOC) content of adhesives shall not exceed the limits defined in Rule #1168, “Adhesive and Sealant Applications” of SCAQMD.

1.4 PROJECT CONDITIONS

A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following time periods:
   1. 48 hours before installation.
   2. During installation.
   3. 48 hours after installation.

B. After post installation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Flexco Corporation - Tuscumbia, AL; (800) 633-3151.
   2. Johnsonite - Chagrin Falls, OH; (800) 899-8916.
   3. Roppe Corporation - Fostoria, OH; (800) 537-9527.
   4. Manufacturers of equivalent products submitted and approved in accordance with Section 01 6200 “Product Options”.
      a. The Architect reserves the right to reject proposed substitutions on the basis of color and pattern compatibility even though fabrication and materials are equivalent.

2.2 RESILIENT WALL BASE

A. Wall Base: Rubber.

B. Style: Cove with top-set toe.

C. Minimum Thickness: 0.125 inch (1/8”).

D. Height: 4 inches unless noted otherwise.

E. Length: Coils in manufacturer's standard length.

F. Outside Corners: Premolded (Job formed when approved by the Architect).

G. Inside Corners: Job formed.

H. Surface: Smooth.

I. Color: As selected by the Architect from the Manufacturer's full range of colors.

2.3 RESILIENT MOLDING

A. Molding: Edge guards, transition strips, and other moldings as project conditions require.

B. Length: Manufacturer’s standard lengths for continuous length at each application.

C. Color: As selected by the Architect from the manufacturer’s full range of colors.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturers for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
   1. Adhesives used must comply with the following limits for VOC content when calculated according to EPA Method 24, Appendix A, CFR part 60 (SCAQMD Rule 1168):
      a. Cove Base Adhesives: less than 50 g/L.
      b. Rubber Floor Adhesives: less than 60 g/L.

PART 3 – EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.

B. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer.
   1. Do not use solvents.

C. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.

D. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

1. Do not install resilient products until they are the same temperature as the space where they are to be installed.

E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.
   1. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust.
   2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 RESILIENT WALL BASE INSTALLATION

A. Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

B. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

C. Tightly adhere wall base to substrate throughout length of each piece with base in continuous contact with horizontal and vertical substrates.

D. Do not stretch wall base during installation.

E. On masonry surfaces or other similar irregular substrates, fill voids along top edge of wall base with manufacturer's recommended adhesive filler material.

F. Premolded Corners: Install premolded corners before installing straight pieces.

G. Job-Formed Corners:
   1. Outside Corners: Use straight pieces of maximum lengths possible.
      a. Form without producing discoloration (whitening) at bends.
      b. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.

   2. Inside Corners: Use straight pieces of maximum lengths possible.
      a. Form by cutting an inverted V shaped notch in toe of wall base at the point where corner is formed.
      b. Shave back of base where necessary to produce a snug fit to substrate.

3.3 RESILIENT MOLDING INSTALLATION

A. Install edge guards at edges of floor coverings that would otherwise be exposed.

B. Install reducer strips between dissimilar flooring materials.

C. Butt to adjacent materials and tightly adhere to substrates throughout length of each piece.

3.4 CLEANING

A. Perform the following operations immediately after completing resilient product installation:
   1. Remove adhesive and other blemishes from exposed surfaces.
   2. Sweep and vacuum surfaces thoroughly.
   3. Damp-mop surfaces to remove marks and soil.
      a. Do not wash surfaces until after time period recommended by manufacturer.

3.5 PROTECTION

A. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

1. Use protection methods recommended in writing by manufacturer.

3.6 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

END OF SECTION 09 6513 - RESILIENT WALL BASE AND ACCESSORIES

SECTION 09 9100 - PAINTING AND COATING

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes surface preparation and field application of paint and other coatings.

1.2 RELATED SECTIONS

A. Section 08 1100 – Steel Doors and Frames

B. Section 08 3113 – Access Doors

C. Section 09 2900 – Gypsum Board

1.3 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum 5 years experience.

B. Provide all paint and coating products used in any individual system from the same manufacturer.

C. Low Emitting Materials:
1. Paints: The volatile organic compound (VOC) content of paints shall not exceed the limits defined in “Green Seal Standard for Architectural Coatings” GS-11.
2. Anti-Corrosive Paints: The volatile organic compound (VOC) content of anti-corrosive paints shall not exceed the limits defined in “Green Seal Standard for Anti-Corrosive Paints” GS-03.
3. Stains and Sealers: The volatile organic compound (VOC) content of clear wood finishes, floor coatings, stains, sealers, and shellacs shall not exceed the limits defined in Rule #1113, “Architectural Coatings” of SCAQMD.

1.4 REFERENCES

A. 40 CFR 59, Subpart D: National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency.

B. ASTM D 16: Standard Terminology for Paint, Related Coatings, Materials, and Applications.

C. ASTM D 4442: Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.

D. GreenSeal GS-11: Paints.

E. Refer to ASTM D 16 for definition of terms used in this section.

1.5 SUBMITTALS

A. Submit the following in accordance with Section 01 3000 “Submittal Procedures”.

1. Product Data: Provide data on all finishing products, including VOC content, and color charts.
2. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded.
   a. Submit on tempered hardboard, 8 x 8 inch in size.

3. Manufacturer's Instructions: Indicate special surface preparation procedures.
4. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.7 PROJECT CONDITIONS

A. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

B. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
   1. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Dunn Edwards Paints – Los Angeles, CA; (888) 337-2468
   2. Kwal Paint – USA; (855) 688-0668
   3. Sherwin Williams (Base Manufacturer) – USA; (800) 474-3794
   4. Other manufacturers as submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 PAINTS AND COATINGS

A. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

B. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
   1. Provide paints and coatings of a soft paste consistency, capable of being readily and

uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
2. Supply each coating material in quantity required to complete entire project's work from a single production run.
3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

C. Chemical Content: The following compounds are prohibited.
1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.

D. Colors: As selected by the Architect.
1. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall or ceiling surface onto or under which they are mounted.

2.3 PAINT SYSTEMS – EXTERIOR

A. Concrete and Masonry - Acrylic Textured Coating:
1. Primer: One coat of Loxon clear acrylic sealer / conditioner.
2. Top Coat: Two coats of Ultracrete III.

B. Ferrous Metals – Latex Enamel:
1. Primer: Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
2. Top Coat: Two coats of high gloss latex enamel; Super Paint Exterior High Gloss A85 Series.

C. Galvanized Metals – Latex Enamel:
1. Primer: If unprimed, one coat Pro-Cryl Universal Metal Primer B66-310 Series.
a. If primed, touch up as required.

2. Top Coat: Two coats of high gloss latex enamel; Super Paint Exterior High Gloss A85 Series.

2.4 PAINT SYSTEMS – INTERIOR

A. Concrete and Masonry – Epoxy:
1. Primer: One coat PrepRite Block Filler, B25W25.
2. Epoxy: Two coats semi-gloss Waterbased Catalyzed Epoxy, B70W211/B60V25.

B. Concrete and Masonry – Latex Enamel:
1. Primer: One coat PrepRite Block Filler, B25W25.
2. Top Coat: Two coats of semi-gloss latex enamel; Harmony Interior Latex Semi-Gloss B9W900 Series.

C. Exposed Overhead Metal – Latex-Acrylic Enamel:
1. Primer: One coat of Pro-Cryl Metal Primer B66-310 primer sealer.
2. Top Coat: One coat of eggshell latex-acrylic enamel; Waterborne Acrylic Eggshell Dryfall B42W2.

D. Ferrous Metals – Latex Enamel.
1. Primer: Touch-up with latex primer.

2. Top Coat: Two coats of semi-gloss latex enamel; Pro Green 200.

E. Galvanized Metals – Latex Enamel:
1. Primer: One coat Pro-Cryl Universal Metal Primer B66-310 Series .
2. Top Coat: Two coats of semi-gloss latex enamel; Pro Green 200.

F. Gypsum Board – Epoxy:
1. Primer: One Coat ProMar 200 Zero VOC Latex Primer, B28W2600.
2. Epoxy: Two coats semi-gloss Waterbased Catalyzed Epoxy, B70W211/B60V25.

G. Gypsum Board - Latex Enamel:
1. Primer: One Coat ProMar 200 Zero VOC Latex Primer, B28W2600.
2. Top Coat: Two coats of latex enamel; Harmony Interior Latex B9W900 series.
   a. Semi-gloss, eggshell, satin, or flat as selected by the Architect for the conditions.

H. Gypsum Board - Latex-Acrylic Enamel:
1. Primer: One coat of Harmony Interior Primer B11W900 primer sealer.
2. Top Coat: Two coats of semi-gloss latex-acrylic enamel; Bath Paint Semi-gloss A59 series.

I. Wood, Opaque – Latex Enamel:
1. Primer: One coat of latex primer sealer.
2. Top Coat: Two coats of semi-gloss latex enamel; Pro Green 200.

J. Wood, Transparent – Stain, Varnish:
1. Stain: One coat of stain; Wood Classics Wood Stain A49 Series.
2. Varnish: Two coats of varnish; Wood Classics Waterborne Polyurethane Varnish.

K. Wood, Transparent - Varnish, No Stain:
1. One coat sealer.

2.5 ACCESSORIES

A. Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine surfaces scheduled to be finished prior to commencement of work.
1. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
2. Do not begin application of coatings until substrates have been properly prepared.
3. Report any condition that may potentially affect proper application.

B. Test shop-applied primer for compatibility with subsequent cover materials.

C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
1. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.
4. Gypsum Wallboard: 12 percent.

3.2 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

F. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter.
1. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry.
2. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

G. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).

H. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust.
1. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent.
2. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned.
3. Prime paint entire surface; spot prime after repairs.

I. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent.
1. Apply coat of etching primer.

J. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust.
1. Feather edges to make touch-up patches inconspicuous.
2. Clean surfaces with solvent.
3. Prime bare steel surfaces.

K. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming.
1. Seal knots, pitch streaks, and sappy sections with sealer.
2. Fill nail holes and cracks after primer has dried; sand between coats.
3. Back prime concealed surfaces before installation.

L. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

M. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound.
1. Spot prime defects after repair.

3.3 APPLICATION

A. Apply products in accordance with the manufacturer's written instructions.
   1. Apply each coat to uniform appearance.
   2. Do not apply finishes to surfaces that are not dry.
      a. Allow applied coats to dry before next coat is applied.

   3. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary to completely hide.
   4. Sand wood and metal surfaces lightly between coats to achieve required finish.
      a. Vacuum clean surfaces of loose particles.
      b. Use tack cloth to remove dust and particles just prior to applying next coat.

B. Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, and the following:
   1. Exposed surfaces of steel lintels and ledge angles.
   2. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
   3. Top and bottom of wood doors.
   4. Mechanical and Electrical:
      a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
      b. On the roof and outdoors, paint all piping that is exposed to weather or to view unless otherwise indicated.
      c. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint.
      d. Paint dampers exposed behind louvers and grilles to match face panels.
      e. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

C. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

D. Do Not Paint or Finish the Following Items:
   1. Items indicated to remain unfinished.
   2. Items indicated to receive other finishes.
   3. Items factory-finished unless specifically so indicated. Materials and products having factory-applied primers are not considered factory finished.
   4. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
   5. Exterior insulation and finish system (EIFS).
   6. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   7. Glass.
   8. Marble, granite, slate, and other natural stones.
   9. Floors, unless specifically so indicated.
   10. Ceramic and other tiles.
   11. Acoustical materials, unless specifically so indicated.
   12. Concealed pipes, ducts, and conduits.

3.4 FIELD QUALITY CONTROL

A. See Section 01 4000 “Quality Requirements” for installation quality control.

3.5 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers,

and remove daily from site.

3.6 PROTECTION

A. Protect finished coatings until completion of project.

3.7 EXTRA STOCK

A. Furnish the following for Owner's use in maintenance of applied paint and coatings.
   1. Extra Paint and Coatings: Minimum One (1) gallon of each color.
   2. Label each container with color and paint color formula in addition to the manufacturer's label.
   3. Store where directed by the Owner.

B. Refer to Section 01 6000 “Product Requirements” for additional provisions.

END OF SECTION 09 9100 - PAINTING AND COATING

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 1400 – SIGNAGE

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following types of signage.
   1. Room signs
   2. Reversed channel letters

1.2 RELATED SECTIONS

A. Section 06 1000 - Rough Carpentry

1.3 REFERENCES

A. ICC A117.1-2017 – Accessible and Usable Buildings and Facilities.

1.4 SUBMITTALS

A. Provide the following in accordance with 01 3300 “Submittal Procedures”.
   1. List of proposed products and product data.
   2. Shop drawings listing identifying devices, text, lettering style, dimensions, and methods and details of attachment.
   3. Samples illustrating available types and colors for selection by Architect.
   4. Copy of warranty as specified herein.

1.5 QUALITY ASSURANCE

A. Signs shall be designed, fabricated, and installed in accordance with American National Standard ICC A117.1-2017 and the 2010 Americans with Disabilities Act Standards for Accessible Design.

1.6 WARRANTY

A. Provide under provisions of Section 01 7700 - Closeout Procedures:
   1. Life of building warranty for plastic room signs against defects in materials and workmanship.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. A.R.K. Ramos Signage Systems - Oklahoma City, OK; (800) 725-7266
   2. Best Sign Systems - Montrose, Colorado; (800) 235-2378
   3. Century Sign Builders - Albuquerque, NM; (505) 888-2901
   4. Manufacturers of equivalent products submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 ROOM SIGNS

A. Room Identification Type: “Basic” room signage as manufactured by Century Sign Builders.
   1. Size: 7-3/4 inches wide x 7-3/4 inches high with rounded corners.
   2. Changeable Signage: The Owner shall be able to make changes to room signs with the use of transparencies and a printer.

B. Borders: 3/8 inch wide around perimeter of sign with 1/8 inch inside radius corners.

C. Lettering: ADA Approved San Serif font, 1/32 inch raised tactile characters.
   1. Style selected by Architect from manufacturer's standard.
   2. Height of lettering shall be 5/8”.

D. Text: Refer to Finish Schedule on Drawings for actual text of signs.
   1. Receive Architect’s final approval of text prior to fabrication.

E. Accompanying Braille indications: Grade 2.

F. Symbols: 1/32 inch raised graphics.
   1. Restrooms: International accessibility symbol/men/women.
   2. It is acceptable to slightly increase sign size to accommodate graphics.

G. Colors: Selected by Architect from manufacturer's full range and providing 70 percent contrast between text/graphics and background.

2.3 ROOM SIGN FABRICATION

A. Sign plaque, letters, and symbols shall be constructed using 0.125” single ply non-glare acrylic multi-polymer material with either continuous embedded pigment or a micro-surfaced color layer (depending on color selection).
   1. Signage must be constructed with materials having embedded coloration that is the final approved color for the signs.
      a. Products with painted or other applied coloration are not acceptable.

   2. Sign plaques, lettering, and symbols shall have a matte or eggshell finish.
   3. All letters, numbers and/or symbols shall have a 70% contrast between colors of characters and sign background.

B. Signs shall have a 3/8” wide raised (1/32”) border continuously around the perimeter.

C. Tactile lettering and symbols shall be formed using rotary engraving method and bonded to sign plaque using 3M Scotch 467HP adhesive or approved equal.
   1. Lettering style and size will be in accordance with design format in Century Sign Builders product line CS.
   2. Tactile characters/symbols shall be raised 1/32 inch from sign plate face.
   3. Lettering and symbols shall have 1/32 inch return cut.

D. Signs requiring Braille must be constructed using the Edgerton Grade 2 Braille System.
   1. Text shall be accompanied by Braille on signs requiring Braille.

2.4 FABRICATED STAINLESS STEEL LETTERS

A. Fabricated stainless Steel Exterior lettering as manufactured by Gemini Inc., Cannon Falls, MN; or approved equal.
   1. Type / Finish: High-grade, pre-finished stainless steel alloy #304.
   2. Material Gauge: 18 gauge faces with 24 gauge returns.

3. Letter height as shown in drawings x 1-1/2” depth
4. Mounting: Projected.
5. Lettering Style (Font): Helvetica.
6. Text: As indicated on drawings.
7. Mounting: Removable cans with tamper-resistant truss screws.
8. Lit with 12 volt DC LEDs, Back (“halo”) lit letters with clear polycarbonate backs; UL Listed Sign Sections with Class 2 power supplies, lead wires/cables.

B. A qualified installer shall install fabricated letters. Additional structural support may be required for larger/heavier letters

PART 3 – EXECUTION

3.1 PREPARATION

A. Coordinate requirements for blocking and provide size, location, and height required for mounting.

B. A qualified and experienced sign installer shall install fabricated letters in strict accordance with the manufacturer’s instructions in general and for the specific mounting surface.

3.2 INSTALLATION

A. Install identifying devices after work related to walls and doors is complete.

B. Do not permanently mark finished surfaces with chalk lines or other reference marks.

C. Mount signs and letters in accordance with the manufacturer’s written installation instructions and approved shop drawings.

3.3 ROOM SIGNS

A. Signs shall be mounted using double vinyl foam tape (1/16” thickness) and silicon adhesive (when necessary).

B. All signs shall be mounted 60" from the floor to the center of the sign on the latch side of the door.
1. The distance between the door frame and edge of the sign must be 2".
2. Alternate locations shall be approved by the Architect prior to installation.

C. For signs mounted on glass panels, mount blank panel on opposite glass surface and directly behind room sign to conceal mounting adhesive.

3.4 FABRICATED STAINLESS STEEL LETTERS

A. Provide a solid substrate at wall as required for secure attachment of letters.

B. Utilize wall templates to install logos and lettering per the manufacturer’s recommendations using a laser level.

C. Mount signs using studs set in adhesive with the mounting method specified for each different type of lettering.
1. Collar anchors shall be embedded into the wall surface as required.

2. Projected Mounting: Install pre-cut spacers (with collars and threaded studs if required by manufacturer) between letters and mounting surface to project letters 1 inch from the finished surface.

3.5 CLEANING

A. After installation is complete, clean and polish identifying devices.

END OF SECTION 10 1400 – SIGNAGE

SECTION 10 2119 – POLYMER RESIN TOILET PARTITIONS

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes solid plastic toilet partitions and urinal screens as indicated on drawings and specified herein.

1.2 RELATED WORK

A. Section 061000 – Rough Carpentry.

B. Section 092900 – Gypsum Board.

C. Section 093000 – Tile.

D. Section 102813 – Commercial Toilet Accessories.

1.3 SUBMITTALS

A. Provide in accordance with Section 01 3300 - Submittal Procedures:
   1. Manufacturer's product data for compartment type, partitions, finishes, hardware, and accessories.
   2. Installation instructions and maintenance recommendations.
   3. Shop drawings indicating partition plans, elevations, dimensions, door swings, details for supports, and method of anchorage.
   4. Manufacturer's full range of color samples for selection by the Architect.

1.4 QUALITY ASSURANCE

A. Take field measurements prior to fabrication to ensure proper fitting of work.

1.5 COORDINATION

A. Furnish inserts and anchors which must be built into other work for installation of toilet partitions and related work.
   1. Coordinate delivery and installation with other work to avoid delay.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Knickerbocker Partitions - Freeport, NY; (516) 546-0550
   2. Metpar Corporation - Westbury, NY; (516) 333-2600
   3. Accurate Partitions Corp. - Lyons, IL; (708) 442-6800
   4. Manufacturers of equivalent products submitted and approved in accordance with Section 01 6 200 - Product Options.

2.2 PANELS

A. Panel Types:
   1. Toilet Compartments: Panels supported by pilasters anchored to floor and braced overhead with headrail.
   2. Urinal Screens: Panels mounted to wall with continuous bracket and supported by pilasters anchored to floor.

B. Panel Material: Solid polymer resin with uniform machine radius edges.

C. Panel Size:
   1. Panels: 1 inch Thick x 55 inches High.
   2. Doors: 1 inch Thick x 55 inches High of the same design and construction as panels.
      a. Typical toilet stall doors shall be 24 inches Wide.
      b. Accessible toilet stall doors shall be 36 inches Wide.

   3. Pilasters: 1 inch Thick x 82 inches High of the same design and construction as panels.
   4. Urinal screens: 24 inches Wide x 42 inches High.

D. Anchoring:
   1. Panels shall be anchored to front pilasters with a continuous “U” channel and to the wall with a continuous double ear bracket (panel high).
   2. Pilasters shall be secured to the floor by means of a 1/8 inch aluminum angle and 3/4 inch tamper proof screws and to the wall with continuous single ear brackets (panel high).
      a. Top bracing shall be brite anodized aluminum channel 1-1/2 inch x 1-1/4 inch weighting no less than 0.75 pounds per liner foot.
      b. Cap top of pilasters and secure on inside of compartment with 5/8 inch stainless steel tamper proof screws.
      c. Floor fasteners shall be concealed by 4 inch high, 20 gauge, type 304 stainless steel floor shoe.

2.3 FITTINGS

A. Brackets: Extruded heavy bright anodized Type 6463 TS aluminum.

B. Floor and Wall fasteners: #14 tamper proof screws with conical plastic anchors.

C. All other fasteners shall be 5/8” stainless steel tamper proof screws.

2.4 HARDWARE

A. Hinges shall be piano-type made of bright anodized extruded aluminum, weighing not less than 1.5 pounds per foot.
   1. Knuckles shall have nylon separators.
   2. Pivot pin shall be 1/4 inch Type 304 stainless steel.
   3. Hinge shall have internal spring which is adjustable to hold door open or closed.
   4. Fasteners shall be 3/4 inch tamper proof screws located 8 inches on center on door and pilaster.
      a. Fasteners shall be concealed under a snap on cover.
      b. Cover shall be fastened top and bottom with 5/8 inch stainless steel tamper proof screws.

B. Strike keeper and latch housing shall be heavy extruded bright anodized Type 6463 TS aluminum.
   1. Slide bar and knob shall be heavy extruded bright anodized Type 6463 TS aluminum with “Duracoat” black finish.

C. Combination coat hook and rubber bumper shall be heavy chrome plated “Zamac”.

D. All hardware shall be fastened with tamper-proof fasteners.

2.5 FABRICATION

A. Material shall be homogenous solid polymer resin with uniform color throughout and mar resistant finish.

B. Provide cutouts, drilled holes, and internal reinforcement to receive hardware, accessories, anchors, fasteners, and grab bars as applicable.

C. Color shall be as selected by the Architect from the manufacturer's full range of colors, patterns, and textures.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate requirements for blocking in stud walls to ensure proper support is provided for wall attachments.

B. Verify that site conditions are ready to receive work and opening dimensions are as indicated on shop drawings.

C. Verify correct spacing of plumbing fixtures.

3.2 INSTALLATION

A. Install partitions rigid, straight, plumb, and level in accordance with the manufacturer's installation instructions.

B. Maintain 1/2 inch uniform space between pilasters and panels and not more than 3/4 inch between panels and wall.

C. Attach panel brackets securely to walls using anchor devices recommended by manufacturer.

D. Brace pilasters with overhead rail.
   1. Locate headrail joints at pilaster center lines.

E. Anchor pilaster to floor with 1/8 inch aluminum angle and 1-3/4 inch tamper proof screws.
   1. Conceal floor fastenings with stainless steel pilaster shoes.

F. Anchor urinal screen pilaster to floor with heavy duty galvanized steel angle plate, sheet metal screws, and anchors.
   1. Conceal floor fastenings with stainless steel pilaster shoes.

G. Hang doors from pilasters.
   1. Equip each door with a piano hinge, door latch, door strike and keeper, and coat hook and bumper.
   2. Install door pull on out-swinging doors.

3.3 TOLERANCES

A. Maximum Variation from True Position: 1/4 inch.

B. Maximum Variation from Plumb: 1/8 inch.

3.4 ADJUSTING AND CLEANING

A. Adjust and align hardware to uniform clearance at vertical edge of doors.

B. Adjust hinges to locate in-swinging doors in partial open position and out-swinging doors in closed position when unlatched.

C. Adjust and lubricate hardware for proper operation.

D. Clean surfaces and wash with mild soap.
   1. Do not use abrasives.

3.5 PROTECTION AND REPAIRING

A. Provide protection as necessary to prevent damage during remainder of construction period.

B. Repair damage and refinish so it cannot be detected.

C. Replace damaged, bent, scratched, or dented panels.

END OF SECTION 10 2119 – POLYMER RESIN TOILET PARTITIONS

SECTION 10 2813 - COMMERCIAL TOILET ACCESSORIES

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes toilet accessories and attachment hardware.

1.2 RELATED SECTIONS

A. Section 06 1000 – Rough Carpentry (Blocking in partitions for toilet accessories).

B. Section 09 2900 – Gypsum Board

1.3 QUALITY ASSURANCE

A. Provide and install accessories to comply with ICC ANSI A117.1-2010.

1.4 REFERENCES

A. ICC ANSI A117.1-2010; Specifications for Making Buildings and Facilities Accessible.

B. ASTM A123: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

C. ASTM A167: Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

D. ASTM A269: Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

E. ASTM B456: Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.

1.5 SUBMITTALS

A. Submit in accordance with Section 01 3300- Submittal Procedures:
   1. List of proposed products and product data.
   2. Manufacturer's installation instructions.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. Toilet accessories:
      a. American Specialties Incorporated - Yonkers, New York; (914) 476-9000.
      b. Bobrick Washroom Equipment, Inc. - North Hollywood, California; (800) 553-1600.
      c. Bradley Corporation - Menomonee Falls, Wisconsin; (414) 354-0100.
      d. Manufacturers of equivalent products submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 MATERIALS

A. Toilet accessories are to be constructed of stainless steel sheet, ASTM A167, and tubing,

ASTM A269, unless noted otherwise.

B. Mirror glass shall comply with FS DD-G-451, Type 1, Class 1, Quality q1, 1/4 inch thick with silver coating, copper protective coating, and nonmetallic paint coating complying with FS DD-M-411.

C. Provide with anchor plates, adapters, fasteners, and other anchoring devices required for secure installation.

D. Fasteners, screws, and bolts shall be galvanized or stainless steel, tamperproof, and size appropriate for finish surface where items are mounted.

2.3 FABRICATION

A. Form exposed surfaces from single sheet of material, free of joints.
   1. Form surfaces flat without distortion.
   2. Maintain surfaces without scratches and dents.

B. Weld and grind smooth joints of fabricated components.

C. Shop assemble accessories and package complete with anchors and fittings

2.4 TOILET ACCESSORIES

A. Surface Mounted Toilet Tissue Dispenser: N.I.C. (Owner Supplied Owner Installed)

B. Surface Mounted Sanitary Napkin Disposal; Bobrick B-270 Contura Series:
   1. Size: 7-1/2 inches wide x 10 inches high x 3-13/16 inches deep.
   2. Designed for use with disposable paper liners.
   3. One-piece cover with full length stainless steel piano hinge and integral finger depression for opening cover.

C. Grab Bars:
   1. 18 gage stainless steel with peeled non-slip gripping surface.
   2. 1-1/4 inch diameter, 1-1/2 inch clearance from wall.
      a. Horizontal: 36 inches long; Bobrick B5806 x 36.
      b. Horizontal: 42 inches long; Bobrick B5806 x 42.
      c. Vertical: 18 inches long; Bobrick B5806 x 18.

   3. Mounting flange welded to bar with fasteners concealed with escutcheon plate.

D. Channel Frame Mirrors; Bobrick B165
   1. Surface mounted in one piece channel frame, Type 430 stainless steel with bright polished finish.
   2. No. 1 Quality, 1/4 inch thick tempered select float glass; electrolytically copper-plated mirror glass.
   3. Secured to concealed wall hanger with theft-resistant locking device.
   4. Size: As indicated on drawings.

E. Surface Mounted Liquid Soap Dispenser: N.I.C. (Owner Supplied Owner Installed).

F. Surface Mounted Towel Dispenser: N.I.C. (Owner Supplied Owner Installed).

G. Surface mounted Mop and Broom Holder: provide with service sink, see plumbing.

H. Plumbing pipe safety covers: Provide at all exposed piping. See plumbing.

2.5 KEYING

A. Provide 2 keys for each accessory requiring secure access to filling or maintenance in accordance with Section 01 7700 “Closeout Procedures”.

B. Master key accessories.

2.6 FINISHES

A. Stainless steel: No. 4 satin luster finish.

B. Chrome/nickel plating: ASTM B456, Type SC 2 satin finish.

C. Enamel: Pre-treat to clean condition, apply one coat primer and 2 coats minimum baked enamel.

D. Galvanizing: Galvanize ferrous metal and fastening devices; ASTM A123 to 1.25 oz/sq yd minimum.

PART 3 – EXECUTION

3.1 PREPARATION

A. Coordinate requirements for blocking and deliver inserts and rough-in frames to site at appropriate time for building-in.

B. Provide templates and rough-in measurements as required.

C. Verify exact locations of accessories with Architect.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Mounting heights: Refer to Drawings and references listed in Paragraph 1.4.

C. Install plumbing pipe safety covers on all exposed piping underneath lavatories and vanities.

END OF SECTION 10 2813 - COMMERCIAL TOILET ACCESSORIES

SECTION 104400- FIRE PROTECTION SPECIALTIES

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes the following as shown on the drawings and specified herein:
   1. Fire extinguishers.
   2. Fire extinguisher cabinets.
   3. Mounting brackets.

1.2 RELATED SECTIONS

A. Section 061000 – Rough Carpentry

B. Section 092900 – Gypsum Board

1.3 REFERENCES

A. ANSI / UL 711: Rating and Fire Testing of Fire Extinguishers.

B. ASTM E814: Standard Test Method for Fire Tests of Penetration Firestop Systems.

C. NFPA 10: Standard for Portable Fire Extinguishers.

D. UL 299: Standard for Dry Chemical Fire Extinguishers.

1.4 SUBMITTALS

A. Submit the following in accordance with Section 01 3300 “Submittal Procedures”.
   1. Manufacturer’s product data and installation instructions including dimensions, operational features, and rough-in measurements.
   2. Shop drawings indicating locations and anchorage details.
   3. Maintenance data describing test, refill and recharge schedules, and re-certification requirements.

1.5 QUALITY ASSURANCE

A. Extinguishers, cabinets, and accessories shall be products of a single manufacturer.

B. Extinguishers shall conform to ANSI/NFPA and bear UL label in accordance with ANSI/UL 711 testing.

C. Fire rated cabinets shall meet the requirements of ASTM E814 and be certified and labeled for use in one and two hour wall systems.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:

1. J. L. Industries - Los Angeles, California; (213) 582-2732.
2. Larsen's Manufacturing Company - Minneapolis, Minnesota; (612) 571-1181.
3. Nystrom Building Products – Brooklyn Park, MN; (800) 547-2635
4. Manufacturers of other products submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 FIRE EXTINGUISHERS

A. Multi-Purpose Dry Chemical Type: Cast steel tank with pressure gage.
   1. UL Rating: 4A-80B:C.
   2. Capacity: 10 pounds.
   3. Size: 5 inch diameter x 20 inches high.
   4. Finish: Baked red enamel.

2.3 FIRE EXTINGUISHER CABINETS

A. Types:
   1. Non Fire-Rated, recessed, 5/16 inch flat trim: Larsen Cameo Series C2409-R.
   2. Fire-Rated, recessed, 5/16 inch flat trim: Larsen Cameo Series FS C2409-R.

B. Material:
   1. Boxes: 18 gage formed steel with white baked enamel finish.
      a. Fire rated cabinets shall be double wall, 18 gage cold-rolled steel with 5/8 inch core of fire barrier material.

   2. Door and trim material: Stainless steel.

C. Inside box dimensions (width by height by depth): 9-1/2 x 24 x 3-1/2 inches.

D. Door: Flush with protruding, clear, vacuum-formed, acrylic bubble glazing with red vertical lettering.
   1. Reinforced for flatness and rigidity.

E. Cabinet Mounting Hardware: Manufacturer’s standard appropriate for cabinet and conditions.

F. Fabrication:
   1. Form body of cabinet with tight inside corners and seams.
      a. Mounting holes shall be pre-drilled at the factory.

   2. Form perimeter trim and door stiles by welding, filling, and grinding smooth.
   3. Hinge doors for 180 degree opening with continuous hinge.
      a. Provide handle, latch, and nylon catch.

   4. Glaze doors with resilient channel gasket.
   5. Finish of Cabinet Exterior Door and Trim: Stainless steel.
   6. Finish of Cabinet Interior: White baked enamel.

2.4 MOUNTING BRACKETS

A. Provide manufacturer’s standard, formed steel, galvanized, enamel finished bracket for size and type of extinguisher.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install fire extinguishers, cabinets, and mounting brackets as follows:
   1. Provide multi-purpose, dry chemical type fire extinguisher at all locations, unless

otherwise indicated.
2. Install fire extinguisher cabinets at all locations, unless otherwise indicated.
   a. Install fire rated cabinets in fire rated partitions.

B. Verify rough openings for cabinets are correctly sized and located and blocking has been provided.
1. Install cabinets plumb and level in wall openings.
2. Secure rigidly in place in accordance with the manufacturer's instructions.
3. Place extinguishers in cabinets.

END OF SECTION 10 4400- FIRE PROTECTION SPECIALTIES

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 7500 – FLAGPOLE

PART 1 – GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all materials and labor to make the work complete in every respect as specified herein, shown on the drawings, or reasonably implied to complete the construction.

B. This section includes ground-set flagpoles as follows:
   1. Flagpoles.
   2. Fittings.
   3. Finishes.
   4. Flags.

1.2 RELATED SECTIONS

A. Section 03 3000 – Cast In Place Concrete.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide flagpoles capable of withstanding the effects of wind loads determined in accordance with NAAMM FP 1001, “Guide Specifications for Design of Metal Flagpoles”.
   1. Base flagpole design on polyester flags of maximum standard size suitable for use with flagpole.
   2. Basic Wind Speed: 90 mph; 3 second gust speed at 33 feet above ground.

1.4 SUBMITTALS

A. Submit the following in accordance with Section 01 3300 “Submittal Procedures”:
   1. Product Data: Include material descriptions, label compliance, and installation instructions.
   2. Shop Drawings: Indicate fabrication and installation of the flagpole.
      a. Include dimensions, reinforcement, and construction details.
      b. Indicate anchorage and accessories.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
   1. American Flagpole – Abingdon, VA; (800) 368-7171
   2. Baartol Company – Kenton, OH; (800) 537-4143
   3. Concord Industries, Inc. – Addison, TX; (800) 527-3902
   4. Other manufacturers as submitted and approved in accordance with Section 01 6200 “Product Options”.

2.2 FLAGPOLES

A. Aluminum Flagpoles: Provide cone-tapered flagpoles fabricated from seamless extruded tubing complying with ASTM B 241, Alloy 6063, with a minimum wall thickness of 3/16 inch.

1. Heat treat after fabrication to comply with ASTM B 597, Temper T6.

B. Flagpole Fabrication: Fabricate flagpoles in one piece.
   1. If more than one piece is necessary, provide flush hairline joints using self-aligning, snug-fitting, internal sleeves.

C. Exposed Height: 25 feet unless otherwise indicated.

D. Foundation Tube: Galvanized corrugated-steel foundation tube with a 0.064 inch minimum nominal wall thickness.
   1. Provide with 3/16 inch steel bottom plate and support plate; 3/4 inch diameter steel ground spike; and steel centering wedges all welded together.
   2. Galvanize steel parts, including foundation tube, after assembly.
   3. Provide loose hardwood wedges at top of foundation tube for plumbing pole.
   4. Provide flashing collar of same material and finish as flagpole.

E. Cast Metal Shoe Base: Provide cast metal shoe base for anchor bolt mounting.
   1. Provide with anchor bolts.

2.3 FITTINGS

A. Finial: Manufacturer's standard flush-seam ball sized to match flagpole-butt diameter.

B. Internal Halyard Winch System: Manually operated winch with control stop device and removable handle, stainless steel cable halyard, and concealed revolving truck assembly with plastic-coated counterweight and sling.
   1. Provide flush access door secured with cylinder lock.

C. Halyard Flag Snaps: Provide swivel snap hooks for flags.

D. Finish finial ball and truck assembly to match flagpole.

2.4 FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
   1. Architectural Class I Clear (AA-M12C22A41) Anodic Coating 0.018 mm or thicker complying with AAMA 611.

2.5 FLAGS

A. Provide and install one (1) United States embroidered nylon flag.
   1. Size: 3 feet x 5 feet, or maximum size recommended by manufacturer for pole with two flags.
   2. Material: "Solarmax" nylon by American Flagpole or approved equal.
   3. Warranty: One year full warranty against fading and defects.

B. Provide and install one (1) State of New Mexico embroidered nylon flag.
   1. Size: 3 feet x 5 feet or maximum size recommended by manufacturer for pole with two flags.
   2. Material: "Solarmax" nylon by American Flagpole or approved equal.
   3. Warranty: One year full warranty against fading and defects.

PART 3 – EXECUTION

3.1 PREPARATION

A. Prepare uncoated metal flagpoles that are set in foundation tubes by painting below grade portions with a heavy coat of bituminous paint.

3.02 INSTALLATION

A. Install flagpoles in accordance with the manufacturer's written installation instructions.

B. Foundation Tube: Erect flagpole in foundation tube, seated on bottom plate between steel centering wedges.
   1. Plumb flagpole and install hardwood wedges to secure flagpole in place.
   2. Place and compact sand in foundation tube and remove hardwood wedges.
   3. Seal top of foundation tube with a 2 inch layer of elastomeric joint sealant and cover with flashing collar.

C. Baseplate: Install baseplate on washer placed over leveling nuts on anchor bolts and adjust until flagpole is plumb.
   1. After flagpole is plumb, tighten retaining nuts and fill space under baseplate solidly with nonshrink, nonmetallic grout.
   2. Finish exposed grout surfaces smooth and slope 45 degrees away from edges of baseplate.

END OF SECTION 10 7500 – FLAGPOLE

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 220000 - BASIC MECHANICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Work covered by this Division shall consist of furnishing all labor, equipment, supplies and materials and in performing all operations necessary for the installation of complete and operating mechanical systems as required by these specifications and/or shown on the drawings, subject to the terms and conditions of the contract. The work shall also include the completion of such mechanical and electrical details not mentioned or shown which are necessary for the successful operation of all systems described on the drawings or required by these specifications; this includes the furnishing all materials for items such as filling the systems to make them operable, including water, refrigerant, oil and grease. Also included is start-up and testing which includes both new (Contractor or Owner furnished) or existing equipment affected by the work. This also includes seasonally affected systems, which may require a scheduled visit to the project after substantial completion, once weather permits proper operating conditions (e.g. evaporative coolers, boilers, etc.) Prove satisfactory operation of all equipment and controls to the Engineer on request.

1.02 SECTION INCLUDES

A. Basic Mechanical Requirements specifically applicable to Division 22 & 23 work.

B. INDEX – (BREAKDOWN OF SECTIONS)

PART 1. GENERAL

Scope of Work
Section Includes
Index
Related Documents
General Qualifications and Guidelines
- Contractor Responsibilities
- Existing Utilities
- Insurance
- Conflicts and Correction

Definitions
Permits, Utility Connections and Inspections
Qualifications
Qualification Procedures
Guarantee – Warranty
Contract Documents
Work Sequence
Submittals and Fabrication Drawings – Substitutions and Procedures
- Submittals
- Fabrication Shop Drawings

Substitutions
Products, Materials and Workmanship
Regulatory Requirements
General Materials and Equipment Requirements
Wall, Floor and Ceiling Plates
Sleeves, Inserts and Fastenings
Electrical Arrangement of Motors and Equipment
Project Site Conditions
Cooperation Between Trades and with Other Contractors
Supervision
Site Observation
Precedence of Materials
Records for Owner
Altitude Ratings
Roof/Equipment Interface
Fire and Smoke Rating Requirements

PART 2 – PRODUCTS – Not Used.

PART 3 – EXECUTION

Pipe Pressure Tests
Concrete Bases And Housekeeping Pads
Alignment Of Flexible Couplings
Manufacturer's Recommendations
Space And Equipment Arrangement
Large Apparatus
Protection
Installing Methods
Cutting And Patching
Excavation, Trenching And Backfill
Access Doors
Operation Prior To Completion
Cooperation And Clean Up
Clean And Painting
Tests
Log Of Tests
Start-Up And Training
Operation And Maintenance Data

1.03 RELATED DOCUMENTS

A. Related Sections – Coordinate the requirements of this specification with requirements in other sections. See other sections including:

B. Specification Sections for Cutting and Patching.

C. Specification Sections for Shop Drawings, Product Data, and Samples.

D. Specification Sections for Storage and Protection.

E. Specification Sections for Product Options and Substitutions.

F. Specification Sections for Project Record Documents.

G. Specification Sections for Utilities Excavating and Backfilling.

H. Specification Sections for Concrete.

I. Specification Sections for Rough Carpentry.

J. Specification Sections for Flashing and Sheet Metal.

K. Specification Sections for Painting.

L. Specification Sections for Electrical.

M. All work covered by this Section shall be accomplished in accordance with all applicable provisions of the Contract Documents and any addenda or directives which may be issued herewith, or otherwise.

N All work covered by this section shall be accomplished in accordance with all applicable codes. The Contractor will be expected to be familiar with the codes in addition to practices and workmanship standard to the industry.

1.04 GENERAL QUALIFICATIONS AND GUIDELINES

A. The Contractor shall be skilled in his trade. The Contractor shall execute all work hereinafter specified or indicated on accompanying Drawings. Contractor shall provide all equipment necessary and usually furnished in connection with such work and systems whether or not mentioned specifically herein or on the Drawings. Contractor's requirements should be considered performance based in addition to the

prescriptive requirements of these specifications. It is the general intent that a complete and fully operational system be provided. The Contractor's bid for the work shall carry the intent that all systems are furnished complete and operational unless specifically indicated otherwise.

B. The Contractor shall be responsible for fitting his material and apparatus into the building and shall carefully lay out his work at the site to conform to the structural conditions, to avoid all obstructions, to conform to the details of the installation and thereby to provide a neat, integrated, satisfactory, complete and operating installation.

C. The Mechanical, Electrical, and associated Drawings are necessarily diagrammatic by their nature, and are not intended to show every connection in detail or every pipe or conduit in its exact location. These details are subject to the requirements of code, industry standard practice and workmanship, structural and architectural conditions. The Contractor shall carefully investigate structural and finish conditions and shall coordinate the separate trades in order to avoid interference between the various phases of work. Work shall be organized and laid out so that it will be concealed in furred chases and suspended ceilings, etc., in finished portions of the building, unless specifically noted to be exposed. All exposed work shall be installed parallel or perpendicular to the lines of the building unless otherwise noted. Exposed work in occupied areas shall carry an emphasis on appearance and shall include paint, escutcheons, chrome (or other detail materials), and any other such finish work standard to the industry or otherwise indicated.

D. When the mechanical and electrical frawings do not give exact details as to the elevation of pipe, conduit and ducts, the Contractor shall physically arrange the systems to fit in the space available at the elevations intended with proper grades for the functioning of the system involved. Piping, exposed conduit and the duct systems are generally intended to be installed true and square to the building construction, and located as high as possible against the structure in a neat and workmanlike manner. The Drawings do not show all required offsets, control lines, pilot lines and other location details. Work shall be concealed in all finished areas with access provided where required for proper operation of the system. See the section titled "Contract Documents" for further information on this topic.

E. Existing Utilities –

1. The drawings indicate the locations, type and sizes of various utilities within the site where known. These utilities are indicated as accurately as possible. If the Contractor encounters any utilities during construction, which are not shown on the drawings, they shall ask for written instructions from the Architect and/or Engineer. Any relocation or remodeling required will then be directed by a change order. This Contractor shall assume all responsibility for protection of all utilities, shown or not, and for repair required by this construction.

2. Contractor shall verify location, size, elevation, pressure and any other pertinent data of the existing utilities. Additional costs incurred due to failure to verify such data and to coordinate associated work with respective utility providers shall not be the Owner's responsibility but shall be borne by the Contractor.

3. All costs associated with providing utilities including, but not limited to, connection fees, boring under roads, etc., shall be included in the Contractor's bid price whether such costs are incurred by contractor or charged by the utility company.

4. Submission of a bid by the Contractor shall be considered an acknowledgment by the Contractor of his compliance with this section.

5. The Contractor shall coordinate with Owner's Facility Management, Architect, and this Engineer's office any work that has the potential to hinder mechanical and plumbing services to areas inside or outside this Contract. All shut downs or tie-ins relating to these systems shall be scheduled and submitted in writing to be approved by the Owner's Facility Management, Architect, and this Engineer's office. Contractor shall submit in writing a schedule of construction phasing that indicates areas of first priority during each phase and anticipated completion times. Schedules shall be submitted a minimum of seven days before commencing work. Owner's Facility Management, Architect, and this Engineer's office shall review these schedules and notify the Contractor of acceptance prior to commencement of work.

F. Insurance –

1. The Contractor shall have required insurance. Required insurance shall be provided by this

Contractor for protection against public liability and property damage for the duration of work.

G. Conflicts and Correction –

1. Promptly correct work rejected or failing to conform to the requirements of the Contract, whether observed before or after substantial completion and whether or not fabricated, installed or completed. The Contractor shall bear cost of correcting such rejected and nonconforming work including additional testing and inspections and including compensation for observing mechanical and electrical engineering firm's services and expenses made necessary thereby.

2. If a conflict occurs on the bid documents, the Contractor shall contact the Architect's and Engineer's offices with a written request for clarification. If the conflict is un-resolvable at the time of bid, the most expensive interpretation of the conflict shall be bid so the conflict can be resolved in a deductive manner at a later time if necessary.

3. If a conflict is discovered during construction, the Contractor shall stop work on that portion of the project and contact the appropriate party for clarification. The request for clarification shall be in written form. The Contractor shall bare the burden of replacing work that has been installed incorrectly as a result of a conflict on the drawings where he has not sought the Architect's and Engineer's guidance for clarification.

1.05 DEFINITIONS (Note: These definitions are included here to clarify the direction and intention of this specification. The list given here is not by any means complete. For further clarification as required, Contractor shall contact the designated Owner's representative.)

A. Concealed/Exposed – Concealed areas are those areas, which cannot be seen by the building occupants. Exposed areas are all areas, which are exposed to view by the building occupants, including under counters, inside cabinets and closets, plus all mechanical rooms. All systems, whether concealed or exposed shall be provided with access as required for proper operation of the system.

B. General Requirements – Provisions of requirements in Division 1 as well as other sections, which apply, to the entire work of the Contract and/or project. Basic Contract definitions are included in the General Conditions.

C. Indicated – The term "indicated" is a cross reference to graphic representations, notes or schedules on drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements on Contract documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is for the purpose of helping reader locate the cross reference, and no limitation of location is intended except as specifically noted.

D. Directed, requested, etc. – Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted, and "permitted" mean directed by Architect/Engineer", "requested by Architect/Engineer" and similar phrases. However, no such implied meaning will be interpreted to extend Architect's/Engineer's responsibility into Contractor's area of construction supervision and job safety.

E. And/Or – Where "and/or" is used in these Specifications or on the Drawings, it shall mean "that situations exist where either one or both conditions occur or are required and shall not be interpreted to permit on option on the part of the Contractor.

F. Approve – Where used in conjunction with Architect's/Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations to Architect's/Engineer's responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by Architect/Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of Contract documents or to extend Architect's/Engineer's responsibility into Contractor's area of construction supervision and job safety.

G. As required – Where "as required" is used in these Specifications or on the drawings, it shall mean "that situations exist that are not necessarily described in detail or indicated, that may cause the Contractor certain complications in performing the work described or indicated. These complications entail the normal coordination activities expected of the Contractor where multiple trades are involved and new or existing construction causes deviations to otherwise simplistic approaches to the work to be performed. The term shall not be interpreted to permit an option on the part of the Contractor to achieve the end result. The term shall also carry the general requirement that work be performed with good

workmanship and that it result in a complete and operational system.

H. Furnish – The term “furnish” is used to mean “supply and deliver to project site, ready for unloading, unpacking, assembly, installation, and similar operations.”

I. Where “furnish” applies to work for which the installation is not otherwise specified, “furnish” in such case shall mean, “furnish and install”.

J. Install – The term “install” is used to describe operations at project site including “unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operation.”

K. Provide – The term “provide” means “ to furnish and install, complete and ready for intended use”.

1.06 PERMITS, UTILITY CONNECTIONS AND INSPECTIONS

A. Fees and Costs: If, during the course of the construction, a need arises to buy utilities, the Contractor shall pay all fees attendant thereto. If City/County or privately owned utility piping or electrical cable needs to be extended, relocated, or terminated, the Contractor will pay all permits and construction/inspection fees associated with that particular work. The Contractor shall remove and properly dispose of all construction waste.

B. Compliance: The Contractor shall comply in every respect with all requirements of National Fire Protection Association, local Fire Department regulations and utility company, and any other authorities having jurisdiction. In no case does this relieve the Contractor of the responsibility of complying with these Specifications and Drawings where specified conditions are of higher quality than the requirements of the above-specified authorities. Where requirements of the Specifications and Drawings are more lenient than the requirements of the above authorities having jurisdiction, the Contractor shall make installations in compliance with the requirements of the above authorities with no extra compensation.

1.07 QUALIFICATIONS

A. All mechanics shall be skilled in their respective trade.

B. All welders shall be certified in accordance with the ASME Boiler Test Code, Section IX, latest issue, Certified 6G welders.

1.08 QUALIFICATION PROCEDURES

A. The storage, handling, and transportation of all refrigerants, oils, lubricants, etc. shall be accomplished in strict compliance with all State, local, and Federal Regulations including all requirements set forth by the Environmental Protection Agency (EPA) for the safe handling of regulated refrigerants and materials. The Contractor shall utilize qualified and/or certified personnel and equipment as prescribed by these requirements. In no situation shall any refrigerant be discharged to the atmosphere.

1.09 GUARANTEE – WARRANTY

A. The following guarantee is a part of the specifications and shall be binding on the Contractor.

B. “The Contractor guarantees that this installation is free from mechanical defects. He agrees to replace or repair to the satisfaction of the Architect/Engineer any part of the installation that may fail within a period of one year after date established below, provided that such failure is due to defects in the materials or workmanship or failure to follow the specifications and drawings. Warranty of the Contractor-furnished equipment or systems shall begin on the date of substantial completion.”

C. The extent of guarantees or warranties by Equipment and/or Materials Manufacturers shall not diminish the requirements of the Contractor’s guarantee-warranty to the Owner.

1.10 CONTRACT DOCUMENTS

A. All dimensional information related to new structures shall be taken from the appropriate Drawings. All dimensional information related to existing facilities shall be taken from actual measurements made by the Contractor on the site.

B. The interrelation of the Specifications, the Drawings, and the schedules are as follows: The Specifications determine the nature and setting of the various materials, the Drawings establish the quantities, dimensions and details, and the schedules give the performance characteristics. If the Contractor requires additional clarification, he shall request it in writing, following the contractually prescribed information flow requirements.

C. Should the Drawings or Specifications conflict within themselves or with each other, the better quality, or greater size or quantity of work or materials shall be performed or furnished.

D. Capacities of equipment furnished may exceed those specified as long as there is no detriment to the project as deemed by the Engineer (e.g. short cycling, exceeding electrical limits). There is no tolerance for shortage of capacity. Equipment must at least meet 100% of the design condition.

1.11 WORK SEQUENCE

A. Install work during the construction period. Coordinate mechanical schedule and operations with the Owner and Architect/Engineer:

1.12 SUBMITTALS AND SHOP DRAWINGS – Substitutions and Procedures

A. General

1. Products Submittal List: Include Products specified in the following Sections as well as all equipment listed on the equipment schedules:

a.. Specification Section for Piping, Valves and Fittings

b. Specification Section for Sleeves, Flashings, Supports and Anchors

c. Specification Section for Mechanical Identification

d. Specification Section for Plumbing Piping

e. Specification Section for Ductwork

f. Specification Section for Ductwork Accessories

B. Submittals

1. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

2. Mark dimensions and values in units to match those specified. Highlight and provide drawing and specification references for all features and values. Inapplicable features shall be crossed out.

3. Submittals shall be grouped and submitted in a three ring binder in a manner where all project submittals can be kept under one cover. Supplemental submittal information shall be marked and dated for coordination with the original submittal, including Engineer's comments and referencing.

C. Fabrication Shop Drawings

1. Submit Shop Drawings whenever (1) equipment proposed varies in physical size and arrangement from that indicated on the Drawings. Rearrangement of equipment as laid out, will only be considered as a last resort. Submitting on equipment that does not properly fit is cause for rejection. Requests to rearrange must be forwarded to the Engineer before submitting. The Contractor shall provide detailed drawings of any space approved for rearrangement, (2) where tight spaces require extreme coordination between ductwork, piping, conduit, and other equipment, (3) where called for elsewhere in these Specifications; and (4) where specifically requested by the Architect/Engineer. Fabrication Drawings shall be made at no additional charge to the Owner or the Architect/Engineer. Shop drawings shall be required for duct, piping, structural and architectural coordination at all air handling unit locations to indicate all runs to and from these units. Shop drawings shall also be

required for piping layout in the mechanical \ rooms.

2. Eight (unless otherwise indicated) complete sets of coordination drawings shall be submitted to the Architect/Engineer prior to the scheduled start of the work in the area illustrated by the drawings, for the purpose of showing the Contractor's planned method of installation. The objectives of such drawings are to promote carefully planned work sequence and proper coordination, in order to assure the expeditious solutions of problems, and the installation of lines and equipment as contemplated by the Contract documents while avoiding or minimizing additional costs to the Contractor and to the Owner.

3. In the event the Contractor, in coordinating the various installations and in planning the method of installation, finds a conflict in location or elevation of any of the mechanical systems, with the structural items or with other construction items, such conflicts shall immediately be brought to the attention of the Architect/Engineer.

1.13 SUBSTITUTIONS

A. General – Within thirty days after the date of Contract award or work order, whichever is later, and before purchasing or starting installation of materials or equipment, the Contractor shall submit for review, a complete list of suppliers, contractors and manufacturers for all materials and equipment which will be submitted for incorporation into the project. The list shall be arranged in accordance with the organization of the Specifications. This initial list shall include the manufacturer's name and type or catalog number as required to identify the quality of material or equipment proposed. This list will be reviewed by the Engineer and the Owner and will be returned to the Contractor with comments as to which items are acceptable without further submittal data and which items will require detailed submittal data for further review and subsequent approval. The initial list shall be submitted as herein specified. Materials and equipment requiring detailed submittal data shall be submitted with sufficient data to indicate that all requirements of these Specifications have been met and samples shall be furnished when requested. All manufacturer's data used as part of the submittal shall have all inapplicable features crossed out or deleted in a manner that will clearly indicate exactly what is to be furnished and key specified features shall be highlighted.

B. It is not the intent of the Drawings and/or Specifications to limit products to any particular manufacturer (unless specifically indicated to have "no equivalents") nor to discriminate against an "approved equal" product as produced by another manufacturer. Specific manufacturer's products are mentioned to set a definite standard for acceptance and to serve as a reference in comparison with other products. When a manufacturer's name appears in these Specifications, it is not to be construed that the manufacturer is unconditionally acceptable as a provider of equipment for this project. Nor should the named manufacturer infer that he is exempt from any specified requirement. The successful manufacturer or supplier shall meet all of the provisions of the appropriate specification(s) and shall also be held to the reasonable standard of the specified manufacturer's product.

C. The specified products have been used in preparing the Drawings and Specifications and thus establish minimum qualities with which substitutes must at least equal to be considered acceptable. The burden of proof of equality rests with the Contractor. The decision of the designer is final.

D. When requested by the Architect/Engineer, the Contractor shall provide a sample of the proposed substitute item. In some cases, samples of both the specified item and the proposed item shall be provided for comparison purposes.

E. Timeliness – The burden of timeliness in the complete cycle of submittal data, shop drawings, and sample processing is on the Contractor. The Contractor shall allow a minimum of two (2) weeks time frame for review of each submission by the office of the design discipline involved after receipt of such submissions by that design discipline. The Contractor is responsible for allowing sufficient time in the construction schedule to cover the aforementioned cycles of data processing, including time for all re-submittal cycles on unacceptable materials, equipment, etc. covered by the data submitted. Construction delays and/or lack of timeliness in the above regard are the responsibility of the Contractor and will not be considered in any request for scheduled construction time extensions and/or additional costs to the Owner.

F. All equipment installed on this project shall have local representation; local factory authorized service, and a local stock of repair parts.

G. Acceptance of materials and equipment will be based on manufacturer's published data and will be

tentative subject to the submission of complete shop drawings indicating compliance with the Contract documents and that adequate and acceptable clearance for entry, servicing, and maintenance will exist. Acceptance of materials and equipment under this provision shall not be construed as authorizing any deviations from the Specifications, unless the attention of the Architect/Engineer has been directed in writing to the specific deviations. Data submitted shall not contain unrelated information unless all pertinent information is properly identified.

H. Should a substitution be accepted, and should the substitute material prove defective, or otherwise unsatisfactory for the service intended within the guarantee period, this material or equipment shall be replaced with the material or equipment specified at no additional cost to the Owner.

I. If a proposed substitution has been rejected a third time, it will no longer be considered. Further considerations on the equipment item shall be with the specified item or pre-approved equal.

J. If a substitute product is used, the contractor shall coordinate with other trades any applicable discrepancies between the substituted product and the designed equipment, i.e. voltage, amps, electric phase, wire size, breaker size, etc. It will be the contractors' responsibility to provide and describe any such differences during submittal review period so that engineer can make necessary changes to plans to account for such discrepancies. If the substituted product is used and no such changes are noted by the contractor and/or addressed during submittal review it will be the contractors sole financial responsibility to correct any necessary field changes.

1.14 PRODUCTS, MATERIALS AND WORKMANSHIP

A. All materials, unless otherwise specified, shall be new, free from all defects, suitable for the intended use, and of the best quality of their respective kinds. Materials and equipment shall be installed in accordance with the manufacturer's recommendations and the best standard practice for the type of work involved. All work shall be executed by mechanics skilled in their respective trades, and the installations shall provide a neat, precise appearance. Materials and/or equipment damaged in shipment or otherwise damaged prior to installation shall not be repaired at the job site but shall be replaced with new materials and/or equipment.

B. The responsibility for the furnishing of the proper equipment and/or material and seeing that it is installed as intended by the manufacturer, rests entirely upon the Contractor who shall request advice and supervisory assistance from the representative of specific manufacturers during the installation. The Contractor shall not begin work on any item without a work plan that includes a scheme for a complete and operational system.

C. Flame Spread Properties Of Materials – Materials and adhesives incorporated in this project shall conform to NFPA Standard 255 (1984), "Method of Test of Surface Burning Characteristics of Building Materials". The classification shall not exceed a flame spread rating of 25 for all materials, adhesives, finishes, etc., specified for each system, and shall not exceed a smoke developed rating of 50.

1.15 REGULATORY REQUIREMENTS

The following agencies of jurisdiction, codes, standards, and industry specifications should be considered integral parts of the project documents. The Contractor will be expected to be familiar with and to adhere to the requirements of this information.

A. It is required that the installation shall meet the minimum standards prescribed in the latest editions of the following listed codes and standards, which are made a part of these Specifications. All referenced codes and standards shall be those current at the date of issue of the design documents.

B. National Fire Protection Association Standards (NFPA) –

1. NFPA No. 54, Gas Appliances, Piping, National Fuel Gas Code.

2. NFPA No. 70, National Electrical Code.

3. NFPA No. 101, Life Safety Code.

4. NFPA No. 258, Standard Research Test Method for Determining Smoke Generation of Solid Materials.

C. American National Standards Institute (ANSI) –

1. A40.8, National Plumbing Code.

2. B31.1, Power Piping.

3. B9.1, Safety Code for Mechanical Refrigeration.

D. American Gas Association Publications (AGA) – Directory of Approved Gas Appliances and Tested Accessories.

E. Air Conditioning and Refrigeration Institute Standards (ARI) – All standards related to refrigeration and air conditioning equipment and piping furnished under these Specifications.

F. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) – All current editions of applicable manuals and standards (See Sections 15890 and 15910).

G. Air Moving and Conditioning Association (AMCA) – All current editions of applicable manuals and standards.

H. American Society of Testing Materials (ASTM) – All current editions of applicable manuals and standards.

I. National Electrical Manufacturer's Association (NEMA) – All current editions of applicable manuals and standards.

J. State of New Mexico Fire Marshalls Office as may be applicable to construction on this site.

K. 2015 International Building Code (including the '15 Uniform Mechanical and '15 Uniform Plumbing Codes).

L. 2015 New Mexico Building Code (include the '15 NM Mechanical and '15 NM Plumbing Codes).

M. Occupational Safety and Health Act (OSHA).

N. ADA and ANSI Standards – All work shall be in accord with all regulations and requirements of the Standards and Specifications for Handicapped and Disabled for the Construction of Public Buildings and Facilities in the State of NM usable by Physically Handicapped and Disabled persons, ANSI Standards and the requirements of the American Disabilities Act.

N. Underwriter's Laboratory, Inc. (UL)

P. Environmental Protection Agency (EPA)

Q. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

R. Refer to Specification Sections hereinafter bound for additional Codes and Standards.

S. All materials and workmanship shall comply with all applicable State and National codes, Specifications, and industry standards. In all cases where Underwriters' Laboratories, Inc. have established standards for a particular type material, such material shall comply with these standards. Evidence of compliance shall be the UL "label" or "listing" under Re-Examination Service.

T. The Contract Documents are intended to comply with the aforementioned rules and regulations; however, some discrepancies may occur. Where such discrepancies occur, the Contractor shall immediately notify the Architect/Engineer in writing of said discrepancies and apply for an interpretation. Should the discovery and notification occur after the execution of a contract, any additional work required for compliance with said regulations shall be paid for as covered by Division 1 of these Contract Documents, providing no work of fabrication of materials has been accomplished in a manner of noncompliance. Should the Contractor fabricate and/or install materials and/or workmanship in such a manner that does not comply with the applicable codes, rules and regulations, the Contractor who performed such work shall bear all costs arising in correcting these deficiencies to comply with said rules and regulations.

1.16 GENERAL MATERIALS AND EQUIPMENT REQUIREMENTS

A. Storage at Site: The Contractor shall not receive material or equipment at the job site until there is suitable space provided to properly protect equipment from rust, drip, humidity, and dust damage.

B. Capacities shall be not less than those indicated, but shall otherwise be such that no component or system becomes inoperative or is damaged because of startup or other overload or underload conditions.

C. Conformance with Agency Requirements: Where materials or equipment are specified to be approved, listed, tested, or labeled by the Underwriters' Laboratories, Inc., or constructed and/or tested in accordance with the standards of the American Society of Mechanical Engineers or the Air Moving and Conditioning Association, or any similar listing or testing requirement, the Contractor shall submit proof that the items furnished under this Section of the Specifications conform to such requirements. For example, the label of the Underwriters Laboratories, Inc., applied to the item will be acceptable as sufficient evidence that the items conform to such requirements. The ASME stamp or the AMCA label will be acceptable as sufficient evidence that the items conform to the respective requirements.

D. Nameplates: Each major component of equipment shall have the manufacturer's name, address, and catalog number on a plate securely attached to the item of equipment. All data on nameplates shall be legible at the time of Final Inspection.

E. Prevention of Rust: Standard factory finish will be acceptable on equipment specified by model number; otherwise, surfaces of ferrous metal shall be given a rust inhibiting coating. The treatment shall withstand 200 hours in salt spray fog test, in accordance with Method 6061 of Federal Standard No. 141. Immediately after completion of the test, the specimen shall show no signs of wrinkling or cracking and no signs of rust creepage beyond 1/8" on either side of the scratch mark. Where rust inhibitor coating is specified hereinafter, any treatment that will pass the above test is acceptable unless a specific coating is specified except that coal tar or asphalt type coating will not be acceptable unless so stated for a specific item. Where steel is specified to be hot-dip galvanized, mill-galvanized sheet steel may be used provided all raw edges are painted with a zinc-pigmented paint conforming to Military Specification MIL-P-26915.

F. Protection from Moving Parts: Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts shall be fully enclosed or properly guarded for personnel protection.

G. Verification of Dimensions: The Contractor shall be responsible for the coordination and proper relation of his work to the building structure and to the work of all trades. The Contractor shall visit the premises and become thoroughly familiar with all details of the work and working conditions, to verify all dimensions in the field, and to advise the Architect/Engineer of any discrepancy before performing any work. Adjustments to the work required in order to facilitate a coordinated installation shall be made at no additional cost to the Owner or the Architect/Engineer.

1.17 WALL, FLOOR AND CEILING PLATES

A. See Specification Section for Supports and Anchors

1.18 SLEEVES, INSERTS, AND FASTENINGS

A. See Specification Section for Supports and Anchors

1.19 ELECTRICAL ARRANGEMENT OF MOTORS AND EQUIPMENT

A. The Contractor shall note that the electrical design and Drawings are based on the equipment scheduled and indicated on the Drawings, and should any mechanical equipment be provided requiring changes to the electrical design, the required electrical changes shall be made at no cost to the Owner.

B The Electrical Trades shall provide all interconnecting wiring for the installation of all power to equipment. By code, all equipment must be served and protected by proper electrical equipment such as disconnect switches and starters. Further, it is the intent of the design that all equipment be served and protected in a manner that meets code. All combination starters, individual starters, disconnect switches and other motor starting and safety apparatus not specifically scheduled or specified as provided by the equipment manufacturer under the scope of Division 23, or otherwise indicated under the scope of Division 26, shall be implied to be furnished with these components under Division 23.

1.20 PROJECT/SITE CONDITIONS

A. Install Work in locations shown on Drawings, unless prevented by Project conditions. Notify the Architect/Engineer if site conditions indicate that locations should be changed.

B. In the event that changes are necessary, prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. See section on fabrication shop drawings for additional requirements on this item. Obtain permission of Owner before proceeding.

1.21 COOPERATION BETWEEN TRADES AND WITH OTHER CONTRACTORS

A. The Contractor shall be familiar with and responsible for mechanical requirements that may appear throughout the entirety of the specifications and drawings. Each trade, subcontractor, and/or Contractor must work in harmony with the various other trades, subcontractors and/or Contractors on the job as may be required to facilitate the progress to the best advantage of the job as a whole. Each trade, subcontractor, and/or Contractor must pursue its work promptly and carefully so as not to delay the general progress of the job. This Contractor shall work in harmony with Contractors working under other contracts on the premises.

1.22 SUPERVISION

A. Each Contractor and subcontractor shall keep a competent superintendent or foreman on the job at all times. Only licensed master, journeyman and helpers shall be allowed to perform the work.

B. It shall be the responsibility of each superintendent to study all Drawings and familiarize himself with the work to be done by other trades. He shall coordinate his work with other trades and before material is fabricated or installed, make sure that his work will not cause an interference with another trade. Where interferences are encountered, they shall be resolved at the job site by the superintendents involved. Where interferences cannot be resolved without major changes to the Drawings, the matter shall be referred to the A/E for ruling.

1.23 SITE OBSERVATION

A Site observation by the Architect/Engineer is for the express purpose of verifying compliance by the Contractor with the Contract Documents, and shall not be construed as construction supervision nor indication of approval of the manner or location in which the work is being performed, or as being a safe practice or place.

1.24 RECORDS FOR OWNER

A. The Contractor shall maintain a set of “blueline” prints in the Field Office for the sole purpose of recording “installed” conditions. Daily note all changes made in these Drawings in connection with the final installation including exact dimensioned locations of all new underground utilities, services and systems and all uncovered existing active and inactive piping outside the building.

B. At Contract completion the Contractor shall provide a set of reproducible drawings. The Contractor shall transfer the information from the “blueline” prints maintained as described above, and turn over this neatly marked set of reproducible Drawings representing the “as installed” work to the Architect/Engineers for verification and subsequent transmittal to the Owner. These Drawings shall include as a minimum:

1. Addendum written drawing changes.

2. Addendum supplementary drawings.

3. Accurate, dimensioned locations of all underground utilities, services and systems.

4 Identification of equipment work shown on Alternates as to whether alternates were accepted and work actually installed.

5. Change Order written Drawing changes.

6. Change Order supplementary Drawings.

C. In addition to the above, the Contractor shall accumulate during the progress of the job, 3 copies of the following data, prepared in a neat brochure or packet folder and turned over to the Architect/Engineer

for review, and subsequent delivery to the Owner.

1. All warranties, guarantees, and manufacturer's directions on equipment and material covered by the Contract.

2. Four (4) sets of operating and maintenance instructions for heating and cooling and other mechanical and electrical systems. Instructions shall also include recommended preventative maintenance and seasonal changeover procedures.

3. Valve tag charts and diagrams specified herein.

4. Control diagrams representing "as installed" conditions.

5. Certifications of tests such as piping system pressure tests, backflow prevention certification and required factory testing of equipment.

6. Copies of approved Shop Drawings.

7. Any and all other data and/or Drawings required as submittals during construction.

8. Repair parts list of all major items and equipment including name, address and telephone number of local supplier or agent.

9. Testing and Balancing Report.

10. "As-Built Drawings."

11. Documentation on Start-up and Training.

D. All of the above data shall be submitted to the Architect/Engineer for approval, and shall be corrected as instructed by the Architect/Engineer before submission of the final request for payment.

1.25 EXISTING FACILITIES

A. The Contractor shall be responsible for loss or damage to the existing facilities caused by him and his workmen, and shall be responsible for repairing or replacing such loss or damage. The Contractor shall send proper notices, make necessary arrangements, and perform other services required for the care, protection and in service maintenance of all plumbing, heating, air conditioning, and ventilating services for the existing facility. The Contractor shall erect temporary barricades, with necessary safety devices, as required to protect personnel from injury, removing all such temporary protection upon completion of the work.

B. The Contractor shall provide temporary or new services to all existing facilities as required to maintain their proper operation when normal services are disrupted as a result of the work being accomplished under this project.

C. Where existing construction is removed to provide working and extension access to existing utilities, Contractor shall remove doors, piping, conduit, outlet boxes, wiring, light fixtures, air conditioning ductwork and equipment, etc., to provide this access and shall reinstall same upon completion of work in the areas affected.

D. Where partitions, walls, floors, or ceilings of existing construction are indicated to be removed, all Contractors shall remove and reinstall in locations approved by the Architect/Engineer all devices required for the operation of the various systems installed in the existing construction. This is to include but is not limited to temperature controls system devices, electrical switches, relays, fixtures, piping, conduit, etc.

E. Outages of services as required by the new installation will be permitted but only at a time approved by the Owner. The Contractor shall allow the Owner two weeks in order to schedule required outages. The time allowed for outages will not be during normal working hours unless otherwise approved by the Owner. All costs of outages, including overtime charges, shall be included in the contract amount.

1.26 DEMOLITION AND RELOCATION

A. The Contractor shall modify, remove, and/or relocate all materials and items so indicated on the

Drawings or required by the installation of new facilities. All removals and/or dismantling shall be conducted in a manner as to produce maximum salvage. Salvage materials shall remain the property of the Owner, and shall be delivered to such destination or otherwise disposed of as directed by the Owner. Materials and/or items scheduled for relocation and which are damaged during dismantling or reassembly operations shall be repaired and restored to good operative condition. The Contractor may, at his discretion, and upon the approval of the Owner, substitute new materials and/or items of like design and quality in lieu of materials and/or items to be relocated.

B. All items, which are to be relocated, shall be carefully removed in reverse to original assembly or placement and protected until relocated. The Contractor shall clean, repair, and provide all new materials, fittings, and appurtenances required to complete the relocations and to restore to good operative order. All relocations shall be performed by workmen skilled in the work and in accordance with standard practice of the trades involved.

C. When items scheduled for relocation and/or reuse are found to be in damaged condition before work has been started on dismantling, the Contractor shall call the attention of the Owner to such items and receive further instructions before removal. Items damaged in repositioning operations are the Contractor's responsibility and shall be repaired or replaced by the Contractor as approved by the Owner, at no additional cost to the Owner.

D. Service lines to items to be removed, salvaged, or relocated shall be removed to points indicated on the Drawings, specified, or acceptable to the Owner. Service lines not scheduled for reuse shall be removed to the points at which reuse is to be continued or service is to remain. Such services shall be sealed, capped, or otherwise tied-off or disconnected in a safe manner acceptable to the Owner. All disconnections or connections into the existing facilities shall be done in such a manner as to result in minimum interruption of services to adjacent occupied areas. Services to existing areas or facilities, which must remain in operation during the construction period, shall not be interrupted without prior specific approval of the Owner as hereinbefore specified.

1.27 ALTITUDE RATINGS

A. Unless otherwise noted, all specified equipment capacities are for actual site altitude above sea level and adjustments to manufacturer’s ratings must be made accordingly.

1.28 ROOF/EQUIPMENT INTERFACE

A. Piping – Penetration shall be accomplished with factory-made assemblies designed specifically for the purpose. The use of pitch pans or pitch pockets is not allowed.

B. Ductwork without Equipment – Unless otherwise indicated, penetration shall be accomplished with a factory-made insulated roof curb designed for use as duct penetration through roof.

C. Ductwork with Equipment – Each piece of roof mounted equipment such as packaged rooftop air conditioners, air handlers, shall be provided and installed with an insulated roof curb designed to mate with the equipment and provide a weatherproof enclosure. In the event that pre-insulated curb is not available, an un-insulated curb is acceptable if the Contractor provides and installs field insulation per the manufacturer’s instructions. Contractor shall coordinate the roof curb(s) with the Roofing Contractor for installation.

D. General – All roof flashing assemblies, equipment supports and roof curbs shall be closely coordinated with other work through the Roofing Contractor to insure that the flashing, canting, insulation type, installation and location, etc., is correct and appropriate for the particular roof construction type.

E. Each roof curb shall be selected and provided so that the top of the curb shall be level after installation. The curb shall provide a minimum clearance of 8 inches between the top of the finished roof surface and the top of the wood nailer, continuous around the curb perimeter unless noted otherwise.

F. Each roof penetration location shown on the drawing is approximate. Refer to the Architectural and Structural drawing for the structural openings. Refer to cutting and patching section of this Specification for more information.

G. Provide each roof curb with other options as scheduled on the drawings.

1.29 FIRE AND SMOKE RATING REQUIREMENTS

A. The Contractor shall review and become familiar with all the project documents as they pertain to fire and smoke rating requirements.

B. All penetrations of fire or smoke barriers shall be sealed, sleeves (if any), insulation (if any), and vibration isolation (if any) that maintain the fire or smoke resistance of the barrier in accordance with the latest edition of NFPA 101 Life Safety Code.

C. Contractor shall verify locations and type of all partition penetrations from the drawings. Sealing material and methods shall be per UL recommendations.

PART 2 - PRODUCTS – Not Used.

PART 3 - EXECUTION

3.01 PIPE PRESSURE TESTS

A. The following lines shall generally be tested at the stated pressure for the length of time noted. Coordinate these requirements with testing requirements indicated in the specification sections related to that system:

TESTING SERVICE	TESTING. MEDIUM (PSIG)	TESTING PRESSURE (PSIG)	TIME IN HOURS
Natural Gas	Air	100	2

Where leaks occur, the pipe shall be repaired and the tests repeated. No leaks shall be corrected by peening. Defective piping joints shall be removed and replaced.

B. The Engineer shall be notified in advance of the tests so that the test can be witnessed. Tests shall be performed with a chart recorder and charts shall be submitted to the Engineer.

C. These test requirements shall be considered in concert with the requirements indicated in sections specific to these systems.

3.02 MANUFACTURER'S RECOMMENDATIONS

A. The manufacturer's published directions shall be followed in the delivery, storage, protection, installation, piping, wiring, start-up, testing and operation of all equipment and material. The Contractor shall promptly notify the Architect/Engineer, in writing, of any conflict between the requirements of the Contract Documents and the manufacturers' directions, and shall obtain the Architect/Engineer's instructions before proceeding with the work. Should the Contractor perform any such work that does not comply with the manufacturers' directions or such instructions from the Architect/Engineer, he shall bear all costs arising in connection with the deficiencies.

3.03 SPACE AND EQUIPMENT ARRANGEMENT

A. The size of mechanical and electrical equipment indicated on the Drawings is based on the dimensions of a particular manufacturer. While other manufacturers may be acceptable, it is the responsibility of the Contractor to determine if the equipment he proposes to furnish will fit in the space. Fabrication Shop Drawings shall be prepared when required by the Architect/Engineer or Owner to indicate a suitable arrangement (see other specification sections related to fabrication shop drawings.

B. All equipment shall be installed in a manner to permit access to all surfaces. All valves, motors, drives, filters, and other accessory items shall be installed in a position to allow removal for service without disassembly of another part and incompliance with code.

3.04 PROTECTION

A. The Contractor shall at all times take such precautions as may be necessary to properly protect all materials and equipment from damage from the time of delivery until the completion of the work. This shall include the erection of all required temporary shelters and supports to adequately protect any items stored in the open on the site from the weather, the ground and surrounding work; the cribbing of any items above the floor of the construction; and the covering of items in the incomplete building with tarpaulins or other protective covering; the installation of electric heaters in electrical switchgear and similar equipment to prevent moisture damage. Failure on the part of the Contractor to comply with the

above will be sufficient cause for the rejection of the items in question.

B. Take particular care not to damage the building structure in performing work. All finished floors, step treads, and finished surfaces shall be covered to prevent any damage by workmen or their tools and equipment during the construction of the building.

C. Equipment and materials shall be protected from rust both before and after installation. Any equipment or materials found in a rusty condition at the time of final inspection must be cleaned of rust and repainted as specified elsewhere in these Specifications.

D. The contract shall also protect the facility in general. For example, damage to the facility caused by an unprotected roof opening or wall penetration will be the responsibility of this Contractor.

3.05 INSTALLATION METHODS

A. Where to Conceal: All pipes, conduits, etc., shall be concealed in pipe chases, walls, furred spaces, or above the ceilings of the building unless otherwise indicated. Suitable access shall be provided at all access points such as service valves.

B. Where to Expose: In mechanical rooms, janitor's closets tight against pan soffits in exposed "Tee" structures, or storage spaces, but only where necessary, piping may be run exposed. All exposed piping shall be run in the most aesthetic, inconspicuous manner, and parallel or perpendicular to the building lines.

C. Support: All piping, ducts and conduits shall be adequately and properly supported from the building structure by means of hanger rods or clamps to walls as herein specified.

D. Maintaining Clearance: Where limited space is available above the ceilings below concrete beams or other deep projections, pipe and conduit shall be sleeved through the projection where it crosses, rather than hung below them in a manner to provide maximum above-floor clearance. Sleeves shall be as herein specified. Approval shall be obtained from the Architect/Engineer for each penetration not indicated in the Contract Documents.

E. All pipe, conduits, etc., shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. All ducts, pipes and conduits run exposed in machinery and equipment rooms shall be installed parallel to the building lines, except that piping, flues, etc., shall be sloped to obtain the proper pitch. Piping, and ducts run in furred ceilings, etc., shall be similarly installed, except as otherwise shown. All pipe openings shall be kept closed until the systems are closed with final connections.

1. All piping not directly buried in the ground shall be considered as “interior piping”.

2. Prior to the installation of any ceiling material, gypsum, plaster or acoustical board, the Contractor shall notify the construction supervisor so that arrangement can be made for an inspection of the above-ceiling area about to be “sealed” off. The Contractor shall give as much advance notice as possible no less than ten (10) working days.

3. All above-ceiling areas will be subject to an inspection before ceiling panels are installed, or installation is otherwise concealed from view. All mechanical and electrical work at and above the ceiling, including items supported by the ceiling grid, such as air inlets or outlets and lighting fixtures, shall be complete and installed in accordance with Contract requirements, including power to lighting fixtures, fans, and other powered items. Adequate lighting shall be provided to permit thorough inspection of all above-ceiling items. Areas to be included and time of inspection shall be coordinated with the Architect/Engineer.

3.06 CUTTING AND PATCHING

A. General: Cut and patch walls, floors, etc., resulting from work in existing construction. Coordinate all cutting and patching with the requirements of the Architect.

B. Methods of cutting: Openings cut through concrete and masonry shall be made with masonry saws and/or core drills and at such locations acceptable to the Architect/Engineer. Impact-type equipment shall not be used except where specifically acceptable to the Architect/Engineer. Openings in pre-cast concrete slabs for pipes, conduits, outlet boxes, etc., shall be core drilled to exact size.

C. Restoration: All openings shall be restored to "as-new" condition under the appropriate Specification Section for the materials involved, and shall match remaining surrounding materials and/or finishes. Coordinate all finish work with the requirements of the Architect.

D. Masonry: Where openings are cut through masonry walls, provide and install lintels or other structural supports to protect the remaining masonry. Adequate supports shall be provided during the cutting operation to prevent any damage to the masonry occasioned by the operation. All structural members, supports, etc., shall be of the proper size and shape, and shall be installed in a manner acceptable to the Architect/Engineer.

E. Plaster: All mechanical work in areas containing plaster shall be completed prior to the application of the finish plaster coat. Cutting of finish plaster coat will not be permitted.

F. Special Note: No cutting, boring, or excavating, which will weaken the structure, shall be undertaken.

3.07 ACCESS DOORS

A. General: This Contractor shall provide wall or ceiling access doors for unrestricted access to all concealed items of mechanical equipment or devices.

B. Doors: Access doors mounted in painted surfaces shall be of Milcor (Inland-Ryerson Construction Products Company) manufacture, Style K for plastered surfaces and Style M or DW for non-plastered surfaces. The Style K doors shall be set so that the finished surface of the door is even with the finished surface of the adjacent finishes. Access doors mounted on tile surfaces shall be of similar construction as noted above, except they shall be of stainless steel materials. Access doors shall be a minimum of 18" x 18" in size, but will otherwise be required to provide full and free access such that valves fully stroke, equipment doors open fully, and all service points on the equipment can be reached and parts can be replaced.

C. Locations: The contractor shall notify architect of locations where doors will be visible in finished areas. Typically doors shall be installed in non-objectionable location.

3.08 OPERATION PRIOR TO COMPLETION

A. When any piece of mechanical equipment is operable and it is to the advantage of the Contractor to operate the equipment, he may do so, providing that he follows the recommended start-up procedures, and properly supervises the operation, and has the Owner and Architect's written permission to do so. The warranty period, however, shall not commence until the equipment is operated for the beneficial use of the Owner, or date of substantial completion, whichever occurs first.

B. Regardless of whether or not the equipment has or has not been operated, the contractor shall properly clean the equipment, install clean filter media, properly adjust, and complete all deficiency list items before final acceptance by the Owner. The date of acceptance and performance certification will be the same date.

3.09 CHECKING AND TESTING MATERIALS AND/OR EQUIPMENT

A. Before the work is accepted, an authorized representative of the manufacturer of the installed materials and/or equipment shall personally inspect the installation, start-up and operation of his materials and/or equipment to determine that it is properly installed and in proper operating order. The representative shall also conduct training sessions for each piece of equipment as required by the Owner. The qualifications of the representative shall be appropriate to the technical requirement of the installation. The qualifications of the representative shall be submitted to the Architect/Engineer for approval. The decision of the Architect/Engineer concerning the appropriateness of the representative shall be final. Testing and checking shall be accomplished during the course of the work where required by work being concealed, and at the completion of the work otherwise. In addition, the Contractor shall submit to the Architect/Engineer a signed statement from each representative certifying as follows: "I certify that the materials and/or equipment listed below have been personally inspected by the undersigned authorized manufacturer's representative and is properly installed and operating in accordance with the manufacturer's recommendations".

B. Check inspections shall include plumbing equipment, heating, air conditioning, insulation, ventilating equipment, controls, mechanical equipment and such other items hereinafter specified or specifically designated by the Architect/Engineer.

C. Start-up, Testing and Checking shall be seasonally deferred where required such that it can be operated under load.

3.10 COOPERATION AND CLEANUP

A. It shall be the responsibility of each trade to cooperate fully with the other trades on the job to help keep the job site in a clean and safe condition. At the end of each day's work, each trade shall properly store all of his tools, equipment and materials and shall clean his debris from the job. Upon the completion of the job, each trade shall immediately remove all of his tools, equipment, any surplus materials and all debris caused by that portion of the work.

3.11 CLEANING AND PAINTING

A. All equipment, piping, ductwork, grilles, insulation, etc., furnished and installed in exposed areas under Division 22 and 23 of these Specifications and as hereinafter specified shall be cleaned, prepared, and painted as indicated.

B. All equipment furnished by the mechanical subcontractor shall be delivered to the job with a suitable factory protective finish and shall be painted (if required), after installation, with the color hereinafter specified. The following materials shall not be painted: copper, galvanized metal, stainless steel, fiberglass, and PVC.

C. Before painting, materials and equipment surfaces shall be thoroughly cleaned of cement, plaster, and other foreign materials, and all oil and grease spots shall be removed. Such surfaces shall be carefully wiped and all cracks and corners scraped out. Exposed metal work shall be carefully brushed down with the steel brushes to remove rust and other spots and left smooth and clean.

D. Aluminum jacketing on insulation shall not be painted.

E. No nameplates on equipment shall be painted, and suitable protection shall be afforded to the plates to prevent their being rendered illegible due to the painting operation.

3.12 TESTS

A. The Contractor shall make, at no additional cost to the Owner, any tests deemed necessary by the Architect/Engineer, the inspection departments having jurisdiction, and in the National Fire Protection Association, ASTM, etc. Standards listed. The Contractor shall provide all equipment, materials, and labor for making such tests, Reasonable amounts of fuel and electrical energy costs for system tests will be paid by the Contractor.

B. Additional tests specified hereinafter under the various Specification Sections shall be made.

C. The Architect/Engineer shall be notified in writing at least 10 working days before each test and other Specification requirements requiring action on the part of the Architect/Engineer. All equipment shall be placed in operation and tested for proper automatic control requirements before the balancing agency starts their work. These activities will be seasonally deferred as required to properly operate, load and test the equipment (e.g., evaporative coolers and chillers shall be tested in the summer; boilers and furnace sections shall be tested in the winter.)

D. Maintain Log of Tests as hereinafter specified.

E. See Specifications hereinafter for additional tests and requirements.

3.13 LOG OF TESTS

A. All tests shall have pertinent data logged by the Contractor at the time of testing. Data shall include date, time, personnel, description, and extent of system tested, test conditions, test results, specified results, and other pertinent data. Data shall be delivered to the Architect/Engineer as specified under “Requirements for Final Acceptance”. All Test Log entries shall be legibly signed by the Project Contractor or his authorized job superintendent.

3.14 START-UP AND TRAINING

A. “Start-up” and “Training” shall be considered formal and distinct periods in the project, regardless of when they occur in the construction process.

B. Each piece of equipment and system (whether new, existing, by others, etc.) shall be started-up by authorized personnel using manufacturer's recommendations or industry standard practice. Start-up procedures shall be neatly documented in report form and included with operation and maintenance materials for the project.

C. Each piece of equipment and system shall also include training designed to cover the depth of knowledge required to operate and maintain the respective item. Training sessions shall be documented and included with operation and maintenance materials for the project.

3.15 OPERATION AND MAINTENANCE DATA

A. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

B. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

C. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer, Subconsultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

D. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

E. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

F. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.

G. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.

H. Include color coded wiring diagrams as installed.

I. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

J. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

K. Provide servicing and lubrication schedule, and list of lubricants required.

L. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

END OF SECTION

SECTION 220529 - SUPPORTS AND ANCHORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Pipe and equipment hangers and supports.

B. Roof Pipe Supports

C. Equipment bases and supports.

D. Sleeves and seals.

E. Flashing and sealing equipment and pipe stacks.

1.02 RELATED SECTIONS

A. Specification Section for – Firestopping, Joint seals for piping and duct penetration of fire rated assemblies.

B. Specification Section for - Piping Insulation.

C. Specification Section for - Equipment Insulation.

1.03 REFERENCES

A. ASME B31.2 - Fuel Gas Piping

B. ASME B31.9 - Building Services Piping

C. ASTM F708 - Design and Installation of Rigid Pipe Hangers.

D. MSS SP58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.

E. MSS SP69 - Pipe Hangers and Supports - Selection and Application.

F. MSS SP89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

1.04 SUBMITTALS

A. Submit under provisions of Specification Section for submittals.

B. Shop Drawings: Indicate system layout with location and detail of all types of hangers.

C. Product Data: Provide manufacturers catalog data including load capacity.

D. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers.

E. Manufacturer's Installation Instructions: Indicate special procedures and assembly of components.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable local code for support of plumbing piping.

PART 2 - PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

A. Manufacturers:

B. B-Line or Equal.

C. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: adjustable swivel, split ring.

D. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.

E. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

F. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

G. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.

H. Vertical Support:

I. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

J. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

K. Plumbing Piping - DWV:

1. Conform to MSS SP58. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Carbon steel, adjustable swivel, split ring. Wall Support for Pipe Welded steel bracket and wrought steel clamp.

L. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

2.02 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded. Hanger rods to be galvanized (or painted) where outdoors and/or exposed to view in occupied space.

2.03 ALUMINUM PIPE FLASHING SYSTEM

A. Pipe flashing systems shall be approved by the roofing contractor for the project. All roof warranties shall be maintained for the building.

B. Manufacturers: Portals-Plus, Inc. Alumi-flash system or Equal if approved by roof manufacturer and installer.

1. Pipe sizes ½" to 2":Provide C412 EPDM cap that is mechanically sealed to an 8"∅ aluminum base.

2.04 ROOF PIPE SUPPORTS

A. Manufacturer's: Miro Industries Model X-RAH-SS or Equal.

B. Gas piping sizes from ½" to 4": 4-RAH-SS Pillow block adjustable pipe stand with base.

C. Base and pipe stands construction shall be stainless steel. Self lubricating roller shall he made of polycarbonate material.

2.05 SLEEVES

A. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.

B. Sleeves for Round Ductwork: Galvanized steel.

C. Sleeves for Rectangular Ductwork: Galvanized steel or wood.

D. Firestopping Insulation: Glass fiber type, non-combustible.

E. Sealant: Acrylic

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.02 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as scheduled.

B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

C. Place hangers within 12 inches of each horizontal elbow.

D. Use hangers with 1-1/2 inch minimum vertical adjustment.

E. Support riser piping independently of connected horizontal piping.

F. Provide copper plated hangers and supports for copper piping.

G. Design hangers for pipe movement without disengagement of supported pipe.

H. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

3.03 FLASHING

A. Provide flexible flashing and metal counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

B. For roof curbs, flash and counterflash with sheet metal; seal watertight. Attach counterflashing mechanical equipment and lap base flashing on roof curbs. Flatten and solder joints. Provide complete weather proofing of curbs compatible with existing roof.

3.04 SLEEVES

A. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with fire stopping insulation and calk air tight and to meet fire rating of the assembly where exposed to view. Provide close fitting metal collar or escutcheon covers at both sides of penetration where exposed to view.

B. Install stainless steel escutcheons at finished surfaces.

3.05 SCHEDULES – Per Table Below or Per Code, whichever more stringent. Refer to Code for other types of material.

PIPE SIZE Inches	HANGER ROD MAX. HANGER SPACING Feet	MAX PIPE DIAMETER Inches	ROOF SUPPORT SPACING Feet
1/2 to 1-1/4	PVC – 4', Steel – 12' Copper – 6'	3/8	6
1-1/2 to 2	PVC – 4', Steel – 12' Copper – 10'	3/8	6
2-1/2 to 3	PVC – 4', Steel – 12' Copper – 10'	1/2	6

END OF SECTION

SECTION 220553 - MECHANICAL IDENTIFICATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Nameplates.

B. Tags.

C Stencils.

D. Pipe Markers.

1.02 REFERENCES

A. Requirements for references and standards.

B. ASME A13.1 - Scheme for the Identification of Piping Systems.

1.03 SUBMITTALS FOR REVIEW

A. Specification Section for - Submittals: Procedures for submittals.

B. Submit list of wording, symbols, letter size, and color coding for mechanical identification.

C. Product Data: Provide manufacturers catalog literature for each product required.

1.04 SUBMITTALS FOR INFORMATION

A. Specification Section for - Submittals: Procedures for submittals.

B. Manufacturer's Instructions: Indicate installation instructions, special procedures, and installation.

PART 2 - PRODUCTS

2.01 NAMEPLATES

A. Type: UV Resistant engraved phenolic placards.

B. Description: Laminated three-layer plastic with engraved letters on light contrasting background color.

2.02 PIPE MARKERS

A. Color and Lettering: Conform to ASME A13.1.

B. Plastic Tape Pipe and Duct Markers:

1. Manufacturers: Brady stick-on or snap-on type with flow arrows or equal.

2. Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

PART 3 - EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

A. Install identifying devices after completion of coverings and painting.

B. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.

C. Install labels with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

D. Identify outdoor rooftop aiir conditioning units, DDC hardware with plastic nameplates.

E. Identify control panels and major control components outside panels with plastic nameplates.

F. Tag automatic controls, devices inside air conditioning unit control panels. Key to control schematic.

G. Identify piping, concealed or exposed, with plastic tape pipe markers. Identify service and flow direction. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction. For outdoor piping, labels shall UV resistant, but shall otherwise be placed on north (or more shaded) side of pipe where it does not otherwise obstruct visibility.

H. Identify ductwork with air handling unit identification number and area served. Locate identification at air handling unit, at each side of penetration of structure or enclosure, and at each obstruction.

END OF SECTION

SECTION 220700 - PIPING INSULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Piping insulation.

B. Jackets and accessories.

1.02 RELATED SECTIONS

A. Specification Section for Firestopping.

B. Specification Section for Painting, Painting insulation jacket.

C. Specification Section for Mechanical Identification.

D. Specification Section for Plumbing Piping, Placement of hangers and hanger inserts.

1.03 REFERENCES

A. Specification Section for Requirements for references and standards.

B. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

C. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

D. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus.

E. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement.

F. ASTM C449/C449M - Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement.

G. ASTM C518 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

H. ASTM C533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation.

I. ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyurethane Thermal Insulation.

J. ASTM C610 - Standard Specification for Expanded Perlite Block and Pipe Thermal Insulation.

K. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.

L. ASTM C921 - Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.

M. ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.

N. ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics.

O. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

P. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

Q. NAIMA National Insulation Standards.

R. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

S. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials.

1.04 SUBMITTALS FOR REVIEW

A. Specification Section for Submittals:

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

C. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years experience.

1.06 REGULATORY REQUIREMENTS

A. Conform to maximum flame spread/smoke developed rating of 25/50 in accordance with ASTM E84, NFPA 255.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Specification Section for Material and Equipment, Transport, handle, store, and protect products.

B. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Specification Section for Material and Equipment, Environmental conditions affecting products on site.

B. Maintain ambient conditions required by manufacturers of each product.

C. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 - PRODUCTS

2.01 GLASS FIBER

A. Manufacturer: Knauf Pipe Insulation or equal

B. Insulation: ASTM C547, ASTM C 585, NFPA 90A & 90B; rigid molded, noncombustible.

1. 'K' ('Ksi') value: ASTM C177,0.24 at 75 degrees F ambient temperature.

2. Maximum service temperature: 850 degrees F.

3. Maximum moisture absorption: 0.2 percent by volume.

C. Insulation: ASTM C795; semi-rigid, noncombustible, end grain adhered to jacket.

1. K' ('Ksi') value: ASTM C177, 0.24 at 75 degrees F.

2. Maximum service temperature: 650 degrees F.

3. Maximum moisture absorption: 0.2 percent by volume (.02 perms).

D. Vapor Barrier Jacket:

1. ASTM C1136, White kraft paper with glass fiber yarn, bonded to aluminized film (ASJ/SSL Jacketing).

2. Moisture vapor transmission: ASTM E96; 0.02 perms.

E. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.

F. Vapor Barrier Lap Adhesive:

1. Manufacturers: Papco CP-10 or CP-11

2. Compatible with ASJ lap tape.

G. Fibrous Glass Fabric:

1. Manufacturers: Knauf Fiberglass Insert

2. 'K' ('Ksi') value: ASTM C177,0.24 at 75 degrees F ambient temperature.

3. Maximum service temperature: 850 degrees F

2.02 JACKETS

A. PVC Plastic.

1. Manufacturers: Knauf Fitting Covers and Jacketing

2. Jacket: ASTM D1784, One piece molded type fitting covers and sheet material, off-white color.

a. Minimum service temperature: 0 degrees F.

b. Maximum service temperature: 150 degrees F

c. Moisture vapor transmission: ASTM E96; 0.002 perm-inches.

d. Thickness: 15 mil.

e. Connections: Brush on welding adhesive.

3. Covering Adhesive Mastic:

a. Manufacturers: Knauf

b. Compatible with insulation.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Specification Section for Coordination and Meeting, Verification of existing conditions before starting work.

B. Verify that piping has been tested before applying insulation materials.

C. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

A. Specification Section for Quality Control, Manufacturer's instructions.

B. Install in accordance with NAIMA National Insulation Standards.

C. Exposed Piping: Locate insulation and cover seams in least visible locations.

D. Insulated pipes conveying fluids below ambient temperature (including domestic water): Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.

E. Glass fiber insulated pipes conveying fluids below ambient temperature:

1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding

2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with PVC fitting covers.

F. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.

G. For hot piping conveying fluids over 140 degrees F insulate flanges and unions at equipment.

H. Glass fiber insulated pipes conveying fluids above ambient temperature:

1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.

2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with PVC fitting covers.

3. Inserts and Shields:

4. Application: Piping 1-1/2 inches diameter or larger.

5. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.

6. Insert location: Between support shield and piping and under the finish jacket.

7. Insert configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.

8. Insert material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.

I. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Sections for Fire Separations.

J. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces. Finish with PVC jacket and fitting covers.

K. Buried Piping: See piping specifications.

L. Exterior Piping: Piping shall be insulated as specified here and covered by an aluminum jacket as specified

3.03 SCHEDULES

A. Plumbing Systems:
   1. Domestic Hot Water Supply:
      a. Glass Fiber Insulation:
         1) Thickness: 1 inch for pipe sizes thru 1-1/2”.
         2) Thickness: 2 inch for pipe sizes over 1-1/2”.
   2. Domestic Hot Water Recirculation:
      a. Glass Fiber Insulation:
         1) Thickness: 1 inch for pipe sizes thru 1-1/2”.
         2) Thickness: 2 inch for pipe sizes over 1-1/2”.
   3. Domestic Cold Water:
      a. Glass Fiber Insulation with vapor barrier:
         1) Pipe Size Range: All sizes.
         2) Thickness: 1 inch.
   4. Condensate Drains:
      a. Glass Fiber Insulation with vapor barrier:
         1) Pipe Size Range: All sizes.
         2) Thickness: 1/2 inch.

END OF SECTION

SECTION 22 10 00 - PLUMBING PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Pipe, pipe fittings, valves, and connections for piping systems

B. Storm drain (roof drainage)

C. Sanitary sewer & vent

D. Domestic water

E. Natural/Propane gas

F. Condensate & Relief drains

1.02 RELATED SECTIONS

A. Specification Section for - Mechanical Identification.

B. Specification Section for - Piping Insulation.

C. See Specification for Trenching and Backfilling.

1.03 REFERENCES

A. AGA Z21.22 - Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems.

B. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings Class 25, 125, 250 and 800.

C. ASME B16.3 - Malleable Iron Threaded Fittings.

D. ASME B16.4 - Cast Iron Threaded Fittings Class 125 and 250.

E. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.

F. ASME B16.22 - Wrought Copper and Bronze Solder Joint Pressure Fittings.

G. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV.

H. ASME B16.26 - Cast Bronze Fittings for Flared Copper Tubes.

I. ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV.

J. ASME B16.32 - Cast Copper Alloy Solder Joint Fittings for Sovent Drainage Systems.

K. ASME B31.1 - Power Piping.

L. ASME B31.2 - Fuel Gas Piping.

M. ASME B31.9 - Building Service Piping.

N. ASME SEC IX - Welding and Brazing Qualifications.

O. ASTM A47 - Ferritic Malleable Iron Casting (ASTM A47M - Ferritic Malleable Iron Castings).

P. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.

Q. ASTM A74 - Cast Iron Soil Pipe and Fittings.

R. ASTM A234/A234M - Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.

S. ASTM B32 - Solder Metal.

T. ASTM B42 - Seamless Copper Pipe.

U. ASTM B43 - Seamless Red Brass Pipe.

V. ASTM B68 - Seamless Copper Tube (ASTM B68M - Seamless Copper Tube).

W. ASTM B75 - Seamless Copper Tube (ASTM B75M - Seamless Copper Tube).

X. ASTM B88 - Seamless Copper Water Tube (ASTM B88M - Seamless Copper Water Tube).

Y. ASTM B251 - Wrought Seamless Copper and Copper-Alloy Tube (ASTM B251M - Wrought Seamless Copper and Copper-Alloy Tube).

Z. ASTM B280 - Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.

AA. ASTM B302 - Threadless Copper Pipe (TP).

BB. ASTM B306 - Copper Drainage Tube (DWV).

CC. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.

DD. ASTM D1785 - Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

EE. ASTM D2239 - Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter.

FF. ASTM D2447 - Polyethylene (PE) Plastic Pipe Schedules 40 and 80, Based on Outside Diameter.

GG. ASTM D2466 - Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.

HH. ASTM D2513 - Thermoplastic Gas Pressure Pipe, Tubing and Fittings.

II. ASTM D2564 - Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings.

JJ. ASTM D2609 - Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe.

KK. ASTM D2665 - Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.

LL. ASTM D2683 - Socket-Type Polyethylene Fillings for Outside Diameter-Controlled Polyethylene Pipe.

MM. ASTM D2729 - Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

NN. ASTM D2846 - Chlorinated Polyvinyl Chloride (CPVC) Pipe, Fittings, Solvent Cements and Adhesives for Potable Hot Water Systems.

OO. ASTM D2855 - Making Solvent-Cemented Joints with Poly(Vinyl
PP. Chloride) (PVC) Pipe and Fittings.

QQ. ASTM D3034 - Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

RR. ASTM E814 - Fire Tests of Through-Penetration Fire Stops.

SS. ASTM F438 - Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40.

TT. ASTM F441 - Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.

UU. ASTM F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

VV. ASTM F493 - Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings.

WW. ASTM F708 - Design and Installation of Rigid Pipe Hangers.

XX. AWS A5.8 - Brazing Filler Metal.

YY. AWWA C105 - Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids.

ZZ. AWWA C110 - Ductile - Iron and Gray - Iron Fittings 3 in. through 48 in., for Water and Other Liquids.

AAA. AWWA C111 - Rubber-Gasket Joints for Ductile Iron and Gray-Iron Pressure Pipe and Fittings.

BBB. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. Through 12 in. for Water Distribution.

CCC. AWWA C651 - Disinfecting Water Mains.

DDD. CISPI 301 - Cast Iron Soil Pipe and Fittings for Hubless Cast Iron Sanitary Systems.

EEE. CISPI 310 - Joints for Hubless Cast Iron Sanitary Systems.

FFF. MSS SP58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.

GGG. MSS SP-67 - Butterfly Valves.

HHH. MSS SP69 - Pipe Hangers and Supports - Selection and Application.

III. MSS SP-70 - Cast Iron Gate Valves, Flanged and Threaded Ends.

JJJ. MSS SP-71 - Cast Iron Swing Check Valves, Flanged and Threaded Ends.

KKK. MSS SP-78 - Cast Iron Plug Valves, Flanged and Threaded Ends.

LLL. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves.

MMM. MSS SP-85 - Cast Iron Globe & Angle Valves, Flanged and Threaded Ends.

NNN. MSS SP89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

OOO. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

PPP. NCPWB - Procedure Specifications for Pipe Welding.

QQQ. NFPA 54 - National Fuel Gas Code.

1.04 SUBMITTALS FOR REVIEW

A. Specification Section for – Submittals, Procedures for submittals.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

1.05 SUBMITTALS AT PROJECT CLOSEOUT

A. Specification Section for - Contract Closeout, Operation and Maintenance Data, Warranties, Bonds, Procedures for submittals.

1. Project Record Documents: Record actual locations of valves, piping, cleanouts.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with standards.

B. Valves: Manufacturer's name and pressure rating marked on valve body.

C. Welding Materials and Procedures: Conform to ASME SEC IX.

D. Welders Certification: In accordance with ASME SEC IX.

E. Identify pipe with marking including size, ASTM material classification, water pressure rating.

1.07 REGULATORY REQUIREMENTS

A. Perform Work in accordance with applicable plumbing code.

B. Conform to applicable code for installation of backflow prevention devices.

C. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

1.08 DELIVERY, STORAGE, AND PROTECTION

A. Specification Section for - Material and Equipment, Transport, handle, store, and protect products.

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary protective coating on cast iron and steel valves.

D. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

E. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.09 ENVIRONMENTAL REQUIREMENTS

A. Specification Section for - Material and Equipment, Environmental conditions affecting products on site.

B. Do not install underground piping when bedding is wet or frozen.

1.10 EXTRA MATERIALS

A. Specification Section for - Contract Closeout, Operation and Maintenance Data.

B. Provide two repacking kits for each size valve.

PART 2 - PRODUCTS

Note: ASTM F-891 Cellular core Poly(Vinyl Chloride) (PVC) Plastic Pipe shall NOT be allowed under any circumstances for any application.

2.01 BUILDING STORM DRAIN (ROOF DRAINAGE), ABOVE GRADE

Note: ASTM F-891 Cellular core Poly(Vinyl Chloride) (PVC) Plastic Pipe shall NOT be allowed under any circumstances for any application.

A. PVC Pipe: ASTM D1785 Schedule 40 (only when installed in non-plenum applications)

1. Fittings: PVC ASTM 2665

2. Joints: ASTM 2564 Solvent Weld.

2.02 SANITARY SEWER & VENT PIPING - ABOVE GRADE

Note: ASTM F-891 Cellular core Poly(Vinyl Chloride) (PVC) Plastic Pipe shall NOT be allowed under any circumstances for any application.

A. Cast Iron Pipe: CISPI 301, hubless service weight.

1. Fittings: Cast Iron

2. Joints: CISPI 310, neoprene gaskets and stainless steel 4-band clamp & shield assemblies.

B. PVC Pipe: ASTM D1785 Schedule 40 (only when installed in non-plenum applications)

1. Fittings: PVC ASTM 2665

2. Joints: ASTM 2564 Solvent Weld.

2.03 WATER PIPING, ABOVE GRADE

A. Copper Tubing: ASTM B88, Type L, hard drawn or annealed.

1. Fittings: ASME B16.22, wrought copper and bronze.
2. Joints: ASTM B32, solder, Grade 95TA.

2.04 NATURAL/PROPANE GAS PIPING, ABOVE GRADE

A. Steel Pipe: ASTM A53 Schedule 40 black.

1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M, forged steel welding type.

2. Joints: NFPA 54, threaded or welded.

Note: Indoor Natural Gas Piping Operating pressure shall not exceed 0.25 psig unless specifically authorized by the Engineer and the authorities having jurisdiction.

Above Grade Piping within 6” of the ground shall be welded and wrapped.

2.05 RELIEF & CONDENSATE DRAIN LINE

A. Copper Tubing: ASTM B88, Type L, hard drawn:

1. Fittings: ASME B16.22, wrought copper and bronze.

2. Joints: ASTM B32, solder, Grade 95TA.

2.06 FLANGES, UNIONS, AND COUPLINGS

A. Pipe Size 3 Inches and Under:

1. Ferrous pipe: Class 150 malleable iron threaded unions.

2. Copper tube and pipe: Class 150 bronze unions with soldered joints.

B. Pipe Size Over 3 Inch:

1. Ferrous pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.

2. Copper tube and pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.

C. Grooved and Shouldered Pipe End Couplings:

1. Housing: Malleable iron clamps to engage and lock, designed to permit some angular deflection, contraction, and expansion; steel bolts, nuts, and washers; galvanized for galvanized pipe.

2. Sealing gasket: "C" shape composition sealing gasket.

D. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.07 PIPE HANGERS AND SUPPORTS

A. See Specification Section for Supports and Anchors.

2.08 BALL VALVES

A. Construction, 4 Inches and Smaller: MSS SP-110, class 150, 400 psi, bronze, two piece body, chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle, solder or threaded ends. Nibco or Equal.

2.09 PLUG VALVES

A. Construction 2-1/2 Inches and Larger: MSS SP-78, 175 psi CWP, cast iron body and plug, pressure lubricated, teflon or Buna N packing, flanged or grooved ends. Provide lever operator with set screw. Nibco or Equal.

2.10 BUTTERFLY VALVES

A. Construction 1-1/2 Inches and Larger: MSS SP-67, 200 psi CWP, cast or ductile iron body, [nickel-plated ductile iron] [aluminum bronze] elastomer coated ductile iron disc, resilient replaceable EPDM [Buna N] [EPT] seat, wafer, lug or grooved ends, extended neck, [10 position lever handle] infinite position lever handle with memory stop. Provide gear operators for valves 8 inches and larger, and chain-wheel operators for valves mounted over 8 feet above floor. Nibco or Equal.

2.11 SWING CHECK VALVES

A. MSS SP-80 class 125,bronze body and cap, bronze swing disc with rubber seat, solder or threaded ends. Nibco or Equla.

B. 2 Inches and Larger: MSS SP-71, class 125, iron body, bronze swing disc, renewable disc seal and seat, flanged or grooved ends.

2.12 SPRING LOADED CHECK VALVES

A. Up to 2 inches: class 125, bronze body, bronze trim, stainless steel springs, bronze disc Buna N Seals, solder or threaded ends. Nibco or Equla.

B. 2-1/2 inches and larger: iron body, bronze trim, stainless steel springs, bronze disc Buna N Seals, wafer style ends. Nibco or Equal.

2.13 WATER PRESSURE REDUCING VALVES

A. Up to 2 Inches:

1. MSS SP-80, bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer, threaded and single union ends. Wilkins or Equal.

2.14 RELIEF VALVES

A. Pressure Relief:

1. AGA Z21.22 certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.

B. Temperature and Pressure Relief:

1. AGA Z21.22 certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum 210 degrees F, capacity ASME SEC IV certified and labelled.

2.15 STRAINERS

A. Size 2 inch and Under:

1. Threaded brass body for 175 psi CWP, Class 150, threaded bronze body 300 psi, Y pattern with 1/32 inch stainless steel perforated screen. Nibco or Equal.

2. Size 1-1/2 inch to 4 inch:

3. Class 125, flanged iron body, Y pattern with 1/16 inch stainless steel perforated screen.

2.16 FIRE STOP SYSTEMS

A. General Purpose Fire Stopping Sealant:

1. Water based, nonslumping, premixed sealant with intumescent properties, rated for 3 hours per ASTM E814 and UL 1479.

B. General Purpose Vibration Resistant Fire Stopping Sealant:

1. Silicone based, nonslumping, premixed sealant with intumescent properties, vibration and moisture resistant, rated for 3 hours per ASTM E814 and UL 1479.

C. DWV Plastic Pipe Systems Fire Stopping Sealant:

D. Silicone based, premixed sealant with intumescent properties, vibration and moisture resistant, rated for 3 hours per ASTM E814 and UL 1479 with metal collars.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

D. Install piping to maintain headroom, conserve space, and not interfere with use of space.

E. Group piping whenever practical at common elevations.

F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Sections on expansion compensation where applicable.

G. Where waste and vents are exposed at fixtures, pipes shall be chrome plated brass and shall have chrome plated escutcheons where they pass through floors, walls, or ceilings.

H. Install underground gas piping at a minimum depth of 12 inches below grade.

I. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Sections on insulation.

J. Provide access where valves and fittings are not exposed.

K. Establish elevations of buried water and sewer piping outside the building to ensure not less than 6 inches below the frost line and not less than 12 inches below grade.

L. Install vent piping penetrating roofed areas to maintain integrity of roof assembly.

M. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

N. Provide support for utility meters in accordance with requirements of utility companies.

O. Prepare exposed, unfinished pipe, fittings, supports, and accessories ready for finish painting. Refer to sections on painting.

P. Excavate in accordance with Sections for excavation and trenching.

Q. Backfill in accordance with Sections for backfilling.

R. Install bell and spigot pipe with bell end upstream.

S. Install valves with stems upright or horizontal, not inverted.

T. Pipe vents from gas pressure reducing valves to outdoors and terminate in weatherproof hood.

U. Install water piping to ASME B31.9.

V. Sleeve pipes passing through partitions, walls and floors. Seal and provide fire stopping as indicated by Sections on penetrations, sealing, and fire stopping.

W. No bushings shall be used in conjunction with any gas or water piping. All branch outlet gas pipes shall be taken from the top or sides of running horizontal lines.

3.04 INSERTS

A. See Specification Section on SUPPORTS AND ANCHORS.

3.05 PIPE HANGERS AND SUPPORTS

A. See Specification Section for Supports and Anchors.

3.06 APPLICATION

A. Use grooved mechanical couplings and fasteners only in accessible locations.

B. Install unions downstream of valves and at equipment or apparatus connections.

C. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.

D. Install ball or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.

E. Install ball or butterfly valves for throttling, bypass, or manual flow control services.

F. Provide lug end butterfly valves adjacent to equipment when provided to isolate equipment.

G. Provide spring loaded check valves on discharge of water pumps.

H. Provide plug valves in natural gas systems for shut-off service.

I. Provide flow controls in water circulating systems where indicated.

3.07 ERECTION TOLERANCES

A. Specification Section for Quality Control; Tolerances.

B. Establish invert elevations, slopes for drainage to 1/4 inch per foot minimum. Maintain gradients.

C. Slope water piping minimum 0.25 percent and arrange to drain at low points.

3.08 SERVICE CONNECTIONS

A. Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.

B. Provide new water service complete with approved reduced pressure backflow preventer and sand strainer where indicated. In addition, provide an insulated, lockable backflow preventer enclosure in accordance with code (See ASSE Standard #1060).

C. Provide test of backflow preventer in compliance with code and furnish test results to the engineer and provide results with O&M Data.

D. Provide new gas service. Gas service distribution piping to have initial minimum pressure of 0.25 psi

3.09 TESTING

A. All New Primary & Secondary Roof Drain Piping – All openings shall be tightly sealed. A stand pipe shall be created if necessary and the system shall be tested in its entirety or in segments. Each element in the system shall be tested to a 10 foot water column for 24 hours. Each joint shall be tight and there shall be no loss in water level. The test shall otherwise comply with code requirements.

B. Waste and Vent – All openings shall be tightly sealed. A stand pipe shall be created if necessary and the system shall be tested in its entirety or in segments. Each element in the system shall be tested to a 10 foot water column for 24 hours. Each joint shall be tight and there shall be no loss in water level. The test shall otherwise comply with code requirements.

C. All (New & Existing) Gas – For system pressure less than 1 psi – Test at 10 psi or pressure required by per local codes, whichever is greater, for 24 hour. For system pressure 1 psi or greater – Test at 100 psi for 24 hours.

All openings shall be tightly sealed. The system shall be filled with air and pressurized to 10psi or pressure required by per local codes, whichever is greater, for systems that operate at less than 1psig, and 100psi for systems that operate at 1psig or greater. The test shall be documented on a chart recorder and held for 24 hours with no loss in pressure. The test shall otherwise comply with code requirement.

Note the following items in particular (International Fuel Gas Code):

Gas Code: 107.2 – Tests shall be made by the permit holder and observed by the code official.
Gas Code: 406.1.3 – Systems valves shall not be used as test stops, unless it can be demonstrated that the valve is rated to withstand the test pressure.
Gas Code: 406.4 – Test pressure shall be measured with a device designed and calibrated to read, record, and indicate a loss in pressure during the test period.

1. Existing gas piping to be reused and/or connected to shall be tested as required by code official and by this specification. Contractor shall provide and install necessary shut-off valves as required to test sections of pipe.

D. Domestic Hot and Cold Water – All openings shall be tightly sealed. The system shall be filled with water and/or air and pressurized to 150 psig. The test shall be documented on a chart recorded and held for 24 hours with no loss in pressure. The test shall otherwise comply with code requirements. Also see disinfection requirements.

E. The engineer shall be notified 48 hours in advance of this procedure so that it may be witnessed. Regardless of whether the engineer is available to witness the results, the contractor shall document the procedure and the results and provide it to the engineer.

END OF SECTION - 22 10 00

SECTION 223000 - PLUMBING SPECIALTIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Floor drains.

B. Cleanouts.

C. Hose bibs.

D. Water arrestors.

1.02 RELATED SECTIONS

A. Specification Section for Roofing.

B. Specification Section for Plumbing Piping.

C. Specification Section for Plumbing Fixtures.

D. Specification Section for Plumbing Equipment.

1.03 REFERENCES

A. ASME A112.21.1 - Floor Drains.

B. ASME A112.21.2 - Roof Drains.

C. ASME A112.26.1 - Water Hammer Arrestors.

D. ASSE 1011 - Hose Connection Vacuum Breakers.

E. ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.

F. PDI WH-201 - Water Hammer Arrestors.

1.04 SUBMITTALS FOR REVIEW

A. Specification Section for Submittals.

B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.

C. Manufacturer's Instructions: Indicate Manufacturer's Installation Instructions: Indicate assembly and support requirements.

D. Shop Drawings: Indicate dimensions, weights, and placement of openings and holes.

1.05 SUBMITTALS AT PROJECT CLOSEOUT

A. Specification Section for Contract Closeout, Operation and Maintenance Data, Warranties and Bonds, Procedures for submittals.

B. Project Record Documents: Record actual locations of equipment, cleanouts, backflow preventers, and water hammer arrestors.

C. Operation Data: Indicate frequency of treatment required for interceptors.

D. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Specification Section for Material and Equipment, Transport, handle, storage, and protection of products.

B. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 - PRODUCTS

2.01 See the Plumbing Fixture Schedule on the drawings. All products must be chloridium resistant.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

C. Encase exterior cleanouts in concrete flush with grade.

D. Install floor cleanouts at elevation to accommodate finished floor.

E. Install approved potable water protection devices on plumbing lines where contamination of domestic water may occur; on boiler feed water lines, janitor rooms, fire sprinkler systems, premise isolation, irrigation systems, flush valves, interior and exterior hose bibs.

F. Provide quick closing valves (flush valves, ice machines, laundry tubs, etc.) with mechanical water hammer arrestors. No air chambers allowed.

END OF SECTION

SECTION 224000 - PLUMBING FIXTURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Water closets.

B. Urinals.

C. Lavatories.

D. Sinks.

E. Water coolers.

1.02 RELATED SECTIONS

A. Specification Section for Custom Casework: Preparation of counters for sinks.

B. Specification Section for Joint Sealers: Seal fixtures to walls and floors.

C. Specification Section for Supports and Anchors.

D. Specification Section for Plumbing Piping.

1.03 REFERENCES

A. ARI 1010 - Drinking Fountains and Self-Contained Mechanically Refrigerated Drinking Water Coolers.

B. ASME A112.6.1 - Supports for Off-the-Floor Plumbing Fixtures for Public Use.

C. ASME A112.18.1 - Finished and Rough Brass Plumbing Fixture Fittings.

D. ASME A112.19.1 - Enameled Cast Iron Plumbing Fixtures.

E. ASME A112.19.2 - Vitreous China Plumbing Fixtures.

F. ASME A112.19.5 - Trim for Water-Closet Bowls, Tanks, and Urinals.

G. NFPA 70 - National Electrical Code.

1.04 SUBMITTALS FOR REVIEW

A. Product Data: Provide catalog illustrations of fixtures, sizes, utility sizes, trim, and finishes.

1.05 SUBMITTALS AT PROJECT CLOSEOUT

A. Maintenance Data: Include fixture trim exploded view and replacement parts lists.

B. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

1.07 REGULATORY REQUIREMENTS

A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

1.08 DELIVERY, STORAGE, AND PROTECTION

A. Accept fixtures on site in factory packaging. Inspect for damage.

B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.09 WARRANTY

A. Provide 2 year manufacturer warranty for electric water cooler

PART 2 - PRODUCTS

A. See plumbing fixture schedule on the drawings for product information.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Specification Section for Coordination and Meetings: Verification of existing conditions before starting work.

B. Verify that walls and floor finishes are prepared and ready for installation of fixtures.

C. Verify that electric power is available and of the correct characteristics.

D. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

3.02 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Provide chrome plated rigid or flexible supplies to fixtures with loose key quarter turn stops, reducers, and escutcheons.

C. Install components level and plumb.

D. Install and secure fixtures in place with wall carriers and bolts.

E. Seal fixtures to wall and floor surfaces with sealant as specified, color to match fixture. Provide and install shower pans for all shower floor areas from the perimeter to the drain. Shower pan shall be water tight and material in accordance with local code authority.

F. Solidly attach water closets to floor with lag screws. Lead flashing is not intended hold fixture in place.

3.04 INTERFACE WITH OTHER PRODUCTS

A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

3.05 ADJUSTING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.06 CLEANING

A. Clean plumbing fixtures and equipment.

3.07 PROTECTION OF FINISHED WORK

A. Do not permit use of fixtures during construction.

END OF SECTION

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. New air systems.

1.02 SUBMITTALS

A. Draft Reports: Submit for review prior to final acceptance of Project.

B. Test Reports: Submit prior to final acceptance of project and for inclusion in operating and maintenance manuals. Provide in soft cover, letter size, 3-ring binder, with index page and tabs, and cover identification.

C. Include reduced scale drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.

D. Report Forms: NEBB forms.

PART 2 - PRODUCTS - not used

PART 3 - EXECUTION

3.01 AGENCIES

A. Agency shall be independent of any other contractor on the project and shall perform work in accordance with NEBB procedural standards.

3.02 EXAMINATION AND PREPARATION

A. Before commencing work, verify that systems are complete and operable.

B. TAB entire work for new addition, renovated commons area, and replaced air conditioning equipment.

C. Report any defects, deficiencies, or abnormal conditions in mechanical systems which prevent system balance.

D. Beginning of work means acceptance of existing conditions.

E. Recorded data shall represent actually measured or observed condition.

F. Permanently mark settings of dampers, and other adjustment devices. Set and lock memory stops.

3.03 INSTALLATION TOLERANCES

A. Air Handling Systems: Adjust to within plus or minus 5 percent for supply systems and plus or minus 10 percent for return and exhaust systems of design. (note the positive pressurization requirements for

each unit.)

B. Air Outlets and Inlets: Adjust to within plus or minus 10 percent of design.

3.04 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities.

B. Make air quantity measurements in ducts by traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.

D. Use volume control devices to regulate air quantities only to extent that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers.

E. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.

F. Measure static air pressure conditions on air supply units. Allow for 50 percent loading of filters.

G. Adjust manual outside air, return air, and exhaust air dampers for design conditions.

H. Verify all operational modes including heating, cooling, economizer, and interlock requirements.

I. Confirm operation on scheduling, night setback, temperatures, and heat/cool change over.

END OF SECTION

SECTION 230713 - DUCTWORK INSULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Ductwork insulation.

1.02 RELATED SECTIONS

A. Specification Section 220553 for - Mechanical Identification.

B. Specification Section 233100 for- Ductwork.

1.03 REFERENCES

A. ASTM C518 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

B. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.

C. ASTM C921 - Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

E. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

F. ASTM E162 - Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.

G. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

H. NAIMA National Insulation Standards.

I. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

J. SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

K. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials.

1.04 SUBMITTALS FOR REVIEW

A. Specification Section for – Submittals, Procedures for submittals.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

C. Manufacturer's Instructions: Indicate installation procedures which ensure acceptable workmanship and installation standards will be achieved.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.06 REGULATORY REQUIREMENTS

A. Materials: Flame spread/smoke developed rating of 25/50 in accordance with ASTM E84, NFPA 255.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Specification Section for - Material and Equipment, Transport, storage and protection of products.

B. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.

C. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

B. Maintain temperature during and after installation for minimum period of 24 hours.

PART 2 - PRODUCTS

2.01 GLASS FIBER, FLEXIBLE (DUCT WRAP)

A. Manufacturer: Knauf Duct Wrap or Equal.

B Insulation: Flexible Fiber Glass Blanket: Knauf Friendly Feel™ Duct Wrap meeting ASTM C 553 Types I, II and III, and ASTM C 1290; Greenguard compliant; flexible, limited combustible.

1. In compliance with the New Mexico Mechanical Code and not less than R-5 inside the building envelope and R-8 outside the building envelope. R values are installed factors.

2. 'K' ('ksi') Value: ASTM C 177, 0.29 at 75º F mean temperature.

3. Maximum Service Temperature
   a. Faced: 250º F.
   b. Unfaced: 350° F.

4. Vapor Retarder Jacket: FSK or PSK conforming to ASTM C 1136 Type II.

5. Securement: Secured in place using adhesive and mechanical fasteners spaced a minimum of 12" on center with a minimum of 2 rows per side of duct. Insulation shall be

secured with speed washers and all joints, breaks and punctures sealed with appropriate pressure-sensitive foil tape, or glass fabric and vapor retarder mastic.

6. Density:
   a. Concealed areas: Minimum 3 PCF (48 kg/m^3).
   b. Exposed areas: Minimum 6 PCF (96 kg/m^3).

7. Minimum thickness 2".

C. Tie Wire:

1. Annealed steel, 16 gauge.

D. Outdoor Ductwork:

1. Aluminum Jacket: 0.016-inch thick in smooth, corrugated, or embossed finish with factory applied moisture barrier. Overlap shall be 2-inch minimum.

2. PVC Jacket: Proto Corporation Indoor/Outdoor, UV-resistant, white. Closure shall be solvent weld adhesive or per manufacturer's recommendations.

3. Laminated Self-Adhesive Water and Weather Seals: applied per manufacturers' recommendations.

2.02 GLASS FIBER, RIGID

A. Manufacturer: Knauf Rigid Fiber Glass Board or Equal.

B. Rigid Fiber Glass Board: Knauf Insulation Board meeting ASTM C 612 Type IA and IB; rigid.

1. In compliance with the New Mexico Mechanical Code and not less than R-5 inside the Building Envelope, R-8 outside the Building Envelope.

2. 'K' ('ksi') Value: ASTM C 177, 0.23 at 75º F mean temperature.

3. Maximum Service Temperature: 450º F.

4. Vapor Retarder Jacket: ASJ conforming to ASTM C 1136 Type I, or FSK or PSK conforming to ASTM C 1136 Type II.

5. Securement: Secured in place using adhesive and mechanical fasteners spaced a minimum of 12" on center with a minimum of 2 rows per side of duct. Insulation shall be secured with speed washers and all joints, breaks and punctures sealed with appropriate pressure-sensitive foil tape, or glass fabric and vapor retarder mastic.

6. Density:
   a. Concealed areas: Minimum 3 PCF (48 kg/m^3).
   b. Exposed areas: Minimum 6 PCF (96 kg/m^3).

C. Outdoor Ductwork:

1. Aluminum Jacket: 0.016-inch thick in smooth, corrugated, or embossed finish with factory applied moisture barrier. Overlap shall be 2-inch minimum.

2. PVC Jacket: Proto Corporation Indoor/Outdoor, UV-resistant, white. Closure shall be solvent weld adhesive or per manufacturer's recommendations.

3. Laminated Self-Adhesive Water and Weather Seals: applied per manufacturers' recommendations.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that ductwork has been tested before applying insulation materials.

B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

A. Install in accordance with NAIMA National Insulation Standards.

B. Duct Wrap

1. Install Duct Wrap to obtain specified R-value using a maximum compression of 25%. Installed R-value shall be per ASHRAE 90.1 or other design criteria.
2. Firmly butt all joints.
3. The longitudinal seam of the vapor retarder must be overlapped a minimum of 2 inches. A 2-inch tab is provided on Knauf Friendly Feel™ Duct Wrap for the circumferential seam.
4. Where vapor retarder performance is required, all penetrations and damage to the facing shall be repaired using pressure-sensitive foil tape, or mastic prior to system startup.
5. Pressure-sensitive foil tapes shall be a minimum 3 inches wide and shall be applied with moving pressure using a squeegee or other appropriate sealing tool.
6. Closure shall have a 25/50 Flame Spread/Smoke Developed Rating per UL 723.
7. Duct Wrap shall be additionally secured to the bottom of rectangular ductwork over 24 inches wide using mechanical fasteners on 18-inch centers. Care should be exercised to avoid over-compression of the insulation during installation.

D. Duct air leakage rates shall be in compliance with "SMACNA HVAC Duct Construction Standards" latest edition per applicable leakage class based on pressure.

E. Outdoor Installations: All externally mounted ductwork shall be protected against the elements with a weatherproof finish. The finish shall be either aluminum clad or coated.

1. Aluminum Clad: Duct segments shall incorporate 0.032" (22 gauge) minimum thickness aluminum or alu-zinc sheet which is introduced during the fabrication process as detailed in the "Knauf KoolDuct System Design Guide". All external seams and joints shall be fully sealed with clear silicon. Subsequent to the curing, a 6" strip of self-adhesive, aluminum faced, rubberized bitumen membrane of 60 mil minimum thickness (as supplied by Knauf Insulation) shall be wrapped over all flanged joints, and a 4" strip shall be applied to all other seams on the outer surface of the aluminum duct segment shell if unsealed from the factory. Supports and reinforcement shall be per SMACNA.

2. Coated: The ductwork shall be overcoated with two coats of trowel applied mastic with open weave #10 glass cloth embedded between the two coats as supplied. The coating is to be applied in strict accordance with Knauf Insulation's recommendations over all exposed ductwork including flanged connections. Supports shall be per SMACNA.

3.03 SCHEDULES

A. Outdoor (Exterior Mounted) Supply Ducts & Return Ducts for Refrigeration Systems (entire duct run) if any on plan:

1. 2” Glass Fiber, Vapor Barrier, and Outdoor Finish (Aluminum Clad/Coated).

B. All Indoor Supply Ducts and Return Ducts for Refrigeration Systems (entire duct run):

1. 2” Duct Wrap, Type 75.

C. Return Ducts for *Acustics* (unit supply drop):

1. 1.5” Acustical Duct Liner.

END OF SECTION

SECTION 233100 - DUCTWORK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Metal ductwork.

B. Nonmetal ductwork.

1.02 RELATED SECTIONS

A. Specification Section for - Supports and Anchors, Sleeves.

B. Specification Section for - Duct Insulation, External insulation.

C. Specification Section for - Ductwork Accessories.

D. Specification Section for - Air inlets and Outlets.

E. Specification Section for - Testing, Adjusting and Balancing.

1.03 REFERENCES

A. ASTM A 36 - Structural Steel.

B. ASTM A 90 - Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.

C. ASTM A 525 - General Requirements for Steel Sheet, Zinc- Coated (Galvanized) by the Hot-Dip Process.

D. ASTM A 527 - Steel Sheet, Zinc-Coated (Galvanized) by Hot-Dip Process, Lock Forming Quality.

E. AWS D9.1 - Welding of Sheet Metal.

F. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

G. NFPA 90B - Installation of Warm Air Heating and Air Conditioning Systems.

H. SMACNA - HVAC Air Duct Leakage Test Manual.

I. SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

J. UL 181 - Factory-Made Air Ducts and Connectors.

1.04 PERFORMANCE REQUIREMENTS

A. No variation of duct configuration or sizes permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

1.05 SUBMITTALS

A. Submit under provisions of Specification Section for Submittals.

B. Shop Drawings: Indicate duct fittings, particulars such as gages, sizes, welds, and configuration.

C. Test Reports: Indicate pressure tests performed. Include date, section tested, test pressure, and leakage rate, following SMACNA HVAC Air Duct Leakage Test Manual.

1.06 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Specification Section for Record Documents.

B. Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.07 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

B. Maintain one copy of document on site.

1.08 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

B. Installer: Company specializing in performing the work of this section with minimum three years experience.

1.09 REGULATORY REQUIREMENTS

A. Construct ductwork to SMACNA, NFPA 90A standards.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.

B. Maintain temperatures during and after installation of duct sealants.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Galvanized Steel Ducts: ASTM A525 and ASTM A527 galvanized steel sheet, lock-forming quality, having G60 zinc coating of in conformance with ASTM A90.

B. Insulated Flexible Ducts:

1. Manufacturers: CertainTeed Certaflex or Equal.

2. Two ply vinyl film supported by helically wound spring steel wire; fiberglass insulation; vapor barrier film.

3. Pressure Rating: 10 inches WG positive and 1.0 inches WG negative.

4. Maximum Velocity: 4000 fpm.

5. Temperature Range: -10 degrees F to 160 degrees.

C. Stainless Steel Ducts: ASTM A167, Type 304.

D. Fasteners: Rivets, bolts, or sheet metal screws.

E. Sealant:

1. Manufacturers: Benjamin Moore or Equal.

2. Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic.

F. Hanger Rod: ASTM A36; steel threaded both ends, or continuously threaded.

2.02 DUCTWORK FABRICATION

A. Fabricate and support in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

B. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide turning vanes.

C. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

C. Duct Sizes are inside clear dimensions.

D. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring.

E. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

F. Use crimp joints with or without bead for joining round duct sizes 8 inch and smaller with crimp in direction of air flow.

G. Use double nuts and lock washers on threaded rod supports.

H. Connect diffusers to low pressure ducts with 5 feet maximum length of flexible duct held in place with duct tape and 2 straps or clamps – one on the inner liner followed by duct tape and one on the outer liner.

I. Connect flexible ducts to metal ducts with adhesive duct tape and 2 straps as described above for connection to diffusers.

J. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

3.02 CLEANING (Prior To Project Completion)

A. Clean duct by forcing air at high velocity through duct to remove accumulated dust. Protect any equipment with may be harmed by excessvie dirt with temporary filter, or bypass during cleaning.

3.03 SCHEDULES

A. DUCTWORK MATERIAL SCHEDULE

AIR SYSTEM	MATERIAL
Low Pressure Supply	Steel
Return and Relief	Steel
General Exhaust	Steel

B. DUCTWORK PRESSURE CLASS SCHEDULE

AIR SYSTEM	PRESSURE CLASS
Supply	2 inch
Return and Exhaust	1inch

END OF SECTION

SECTION 233300 - DUCTWORK ACCESSORIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Air turning devices/extractors.

B. Duct access doors.

C. Duct test holes.

D. Flexible duct connections.

E. Volume control dampers.

1.02 RELATED SECTIONS

A. Specification Section for - Ductwork.

1.03 REFERENCES

A. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

B. SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

C. UL 33 - Heat Responsive Links for Fire-Protection Service.

D. UL 555 - Fire Dampers and Ceiling Dampers.

1.04 SUBMITTALS

A. Submit under provisions of Specification Section for Submittals.

B. Shop Drawings: Indicate for shop fabricated assemblies including volume control dampers duct access doors.

C. Manufacturer's Installation Instructions: Indicate for fire dampers.

1.05 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Specification Section for Record Documents.

B. Record actual locations of access doors.

1.06 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Specification Section for Delivery and Storage.

B. Protect dampers from damage to operating linkages and blades.

PART 2 - PRODUCTS

2.01 DUCT ACCESS DOORS

A. Manufacturers: Nailor Industries Model 08SH Hinged Door with Camlock Closure or Equal.

B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.

C. Fabrication: Rigid and close-fitting of galvanized steel with sealing gaskets and quick fastening camlocking devices. For insulated ductwork, install minimum one inch thick insulation with sheet metal cover. Less Than 12 Inches Square: Hinged, Secure with camlocks. Up to 18 Inches Square: Provide continuous hinge and two camlocks.

D. Access doors with sheet metal screw fasteners are not acceptable.

2.02 DUCT TEST HOLES

A. Temporary Test Holes: Cut or drill in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

2.03 FIRE DAMPERS (if shown on plans)

A. Manufacturers: Nailor Industries Model 0120 – Type B.

B. Fabricate in accordance with NFPA 90A and UL 555, and as indicated.

C. Curtain Type Dampers with Integral Sleeve: Galvanized steel with 24 gauge interlocking blades. Provide stainless steel closure springs and latches. Configure with blades out of air stream.

D. Fusible Links: UL 33, separate at 160 degrees F.

2.04 FLEXIBLE DUCT CONNECTIONS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.

B. Connector: Fabric crimped into metal edging strip.

1. Fabric: UL listed fire-retardant neoprene coated woven glass fiber fabric to NFPA 90A, minimum density 30 oz per sq yd.
2. Net Fabric Width: Approximately 3 inches wide.

2.05 VOLUME CONTROL DAMPERS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.

B. Single Blade Dampers: Fabricate for duct sizes up to 6 x 30 inch.

C. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.

D. End Bearings: Except in round ductwork 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon or sintered bronze bearings.

E. Quadrants:
   a. Provide locking, indicating quadrant regulators on single and multi-blade dampers.
   b. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.
   c. Where rod lengths exceed 30 inches, provide regulator at both ends.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install accessories in accordance with manufacturer's instructions, NFPA 90, and follow SMACNA HVAC Duct Construction Standards - Metal and Flexible. Refer to Specification Section for Ductwork, duct construction and pressure class.

B. Provide duct access doors for inspection and cleaning at fire dampers and elsewhere as indicated. Provide minimum 12 x 12 inch (of full size of duct if duct is less than 12 inches) size for hand access, 18 x 18 inch size for shoulder access, and as indicated. Review locations prior to fabrication.

C. Provide duct test holes where required for testing and balancing purposes.

D. Provide fire dampers at locations indicated and where ducts and outlets pass through fire rated components. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges and in full compliance with code.

E. Demonstrate re-setting of fire dampers to Owner's representative.

F. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment.

G. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum 2 duct widths from duct take-off.

H. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

END OF SECTION

SECTION 233700 - AIR OUTLETS AND INLETS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Diffusers.

B. Registers/grilles.

C. Louvers.

1.02 RELATED SECTIONS

A. Specification Section for - Painting: Painting of ductwork visible behind outlets and inlets.

1.03 REFERENCES

A. ADC 1062 - Certification, Rating and Test Manual.

B. ARI 650 - Air Outlets and Inlets.

C. ASHRAE 70 - Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.

D. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

E. NFPA 70 - National Electrical Code.

F. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

1.04 SUBMITTALS

A. Submit under provisions of Specification Section for Submittals.

B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

1.05 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Specification Section for Record Documents.

B. Record actual locations of air outlets and inlets.

1.06 QUALITY ASSURANCE

A. Test and rate air outlet and inlet performance in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.

B. Test and rate louver performance in accordance with AMCA 500.

1.07 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years' experience.

PART 2 - PRODUCTS

2.01 See the Grilles and Diffusers Schedule on the Drawings. Meet all construction standards and features of the specified unit.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement. Double check ceiling types for lay-in and surface mounting prior to ordering.

C. Install diffusers to ductwork with air tight connection.

D. Provide balancing dampers on duct take-off to diffusers.

E. Provide balancing opposed blade dampers (OBD) on grilles and registers located above hard ceilings and/or where balancing dampers are inaccessible.

F. Paint ductwork visible behind air outlets and inlets matte black. Refer to Specification Section on painting.

END OF SECTION

SECTION 238100 - PACKAGED ROOFTOP AIR CONDITIONING UNITS

PART 1 - GENERAL

1.01 INCLUDES

A. Package roof top unit.

B. Heat exchanger.

C. Refrigeration components.

D. Unit operating controls.

E. Roof curb.

F. Electrical power connections.

G. Operation and maintenance service.

1.02 RELATED SECTIONS

A. Specification Section for - Ductwork Insulation.

B. Specification Section for - Controls and Instrumentation.

C. Specification Section for - Equipment Wiring Systems.

1.03 REFERENCES

A. NFPA 90 A & B - Installation of Air Conditioning and Ventilation Systems and Installation of Warm Air Heating and Air Conditioning Systems.

B. ANSI/ASHRAE 15 - Safety Code for Mechanical Refrigeration.

C. ANSI/ASHRAE 37 - Testing Unitary Air Conditioning and Heat Pump Equipment.

D. ANSI/ASHRAE/IES 90 A - Energy Conservation in New Building Design Standard.

E. ANSI Z21.47/UL1995 - Unitary Air Conditioning Standard for safety requirements.

F. ARI 210/240 - Unitary Air-Conditioning Equipment and Air- Source Heat Pump Equipment.

G. ARI 270 - Sound Rating of Outdoor Unitary Equipment.

H. ANSI/NFPA 70-1995 - National Electric Code.

1.04 SUBMITTALS

A. Submit unit performance data including: capacity, nominal and operating performance.

B. Submit Mechanical Specifications for unit and accessories describing construction, components and options.

C. Submit shop drawings indicating overall dimensions as well as installation, operation and services clearances. Indicate lift points and recommendations and center of gravity. Indicate unit shipping, installation and operating weights including dimensions.

D. Submit data on electrical requirements and connection points. Include recommended wire and fuse sizes or MCA, sequence of operation, safety and start-up instructions.

E. Shop drawings submitted for approval shall be accompanied by a copy of the agreement for an authorized service representative of the manufacturer for installation check, test and start up.

1.05 DELIVERY, STORAGE and HANDLING

A. Comply with manufacturer's installation instructions for rigging, unloading, and transporting units.

B. Protect units from physical damage. Leave factory-shipping covers in place until installation.

1.06 WARRANTY

A. Provide parts warranty for one year from start-up or 18 months from shipment, whichever occurs first.

B. Provide five-year extended warranty for compressors.

C. Provide five-year heat exchanger limited warranty.

1.07 REGULATORY REQUIREMENTS

A. Unit shall conform to ANSI Z21.47/UL1995 for construction of packaged air conditioner.

PART 2 - PRODUCTS

2.01 SUMMARY

A. The contractor shall furnish and install package rooftop unit(s) as shown and scheduled on the contract documents. The unit(s) shall be installed in accordance with this specification and perform at the specified conditions as scheduled.

B. The basis of specification is York packaged rooftop air conditioning units. Owner Approved Alternates are: Lennox & Carrier and must comply with the performance and features as specified within these specifications and indicated on the design documents. Non-approved units are: Trane, Rheem, Ruud.

2.02 GENERAL UNIT DESCRIPTION

A. Unit(s) furnished and installed shall be combination heating/ cooling only packaged rooftop (s) as scheduled on contract documents and these specifications. Cooling capacity ratings shall be based on ARI Standard 210. Unit(s) shall consist of insulated weather-tight casing with compressor(s), air-cooled condenser coil, condenser fans, evaporator coil, heating section, return-air filters, supply motors and unit controls and drives.

B. Unit(s) shall be 100% factory run tested and fully charged with R-410.

C. Unit(s) shall have labels, decals, and/or tags to aid in the service of the unit and indicate caution areas.

D. Units shall be convertible airflow design as manufactured.

E. Wiring internal to the unit shall be colored and numbered for identification.

F. Units shall be provided with integral electrical disconnect and/or circuit breakers.

G. Units shall be provided with an un-powered convenience outlet (electrical to provide circuit & wiring).

2.03 UNIT CASING

A. Cabinet: Galvanized steel, phosphatized, and finished with an air-dry paint coating with removable access panels. Structural members shall be 18 gauge with access doors and removable panels of minimum 20 gauge.

B. Units cabinet surface shall be tested 1000 hours in salt spray test in compliance with ASTM B117.

C. Cabinet construction shall allow for all service/ maintenance from one side of the unit.

D. Cabinet top cover shall be one-piece construction or where seams exits, it shall be double-hemmed

and gasket-sealed.

E. Access Panels: Water- and air-tight panels with handles shall provide access to filters, heating section, return air fan section, supply air fan section, evaporator coil section, and unit control section.

F. Units base pan shall have a raised 1 1/8 inch high lip around the supply and return openings for water integrity.

G. Insulation: Provide 1/2-inch thick fiberglass insulation with foil face on all exterior panels in contact with the return and conditioned air stream. All edges must be captured so that there is no insulation exposed in the air stream.

H. Provide openings either on side of unit or through the base for power, control, condensate, and gas connections.

I. The base of the unit shall have 3 sides for forklift provisions. The base of the units shall have rigging/lifting holes for crane maneuvering.

2.04 AIR FILTERS

A. Air Filters: Factory installed filters shall mount integral within the unit and shall be accessible through access panels. One-inch thick glass fiber disposable media filters shall be provided with the provisions within the unit for 2-inch thick filters to be field- provided and installed.

2.05 FANS AND MOTORS

A. Provide evaporator fan section with forward curved, double width, double inlet, centrifugal type fan.

B. Provide self-aligning, grease lubricated, ball or sleeve bearings with permanent lubrication fittings.

C. Provide units with belt driven, supply fans with adjustable motor sheaves.

D. Outdoor and Indoor Fan motors shall be permanently lubricated and have internal thermal overload

E. Outdoor fans shall be direct drive, statically and dynamically balanced, draw through in the vertical discharge position.

F. Provide shafts constructed of solid hot rolled steel, ground and polished, with key-way, and protectively coated with lubricating oil.

2.06 GAS FIRED HEATING SECTION

A. Completely assembled and factory installed heating system shall be integral to unit, UL or CSA approved specifically for outdoor applications for use downstream from refrigerant cooling coils. Threaded connection with plug or cap provided. Provide capability for gas piping through the side of the unit.

B. Heating section shall be factory run tested prior to shipment.

C. Induced draft combustion type with direct spark ignition system, redundant main gas valve, and 2-staged heat.

D. Gas Burner Safety Controls: Provide safety controls for the proving of combustion air prior to ignition, and continuous flame supervision. Provide flame rollout switches.

E. Induced draft blower shall have combustion air proving switches and built-in thermal overload protection on fan motor.

F. Heat Exchanger: Provide tubular section type constructed from 18-gauge aluminized steel.

G. Burners: Burners shall be of the in-shot type constructed of stainless steel.

H. Limit controls: High temperature limit controls will shut off gas flow in the event of excessive temperatures resulting from restricted indoor airflow or loss of indoor airflow.

2.07 EVAPORATOR COIL

A. Provide configured aluminum fin surface mechanically bonded to copper tubing coil.

B. Provide an independent expansion device for each refrigeration circuit. Factory pressure tested at 450 psig and leak tested at 200 psig.

C. Provide factory installed thermal expansion valve (TXV) for each refrigerant circuit. Factory pressure tested at 450 psig and leak tested at 200 psig.

D. Provide a removable, reversible, cleanable double-sloped drain pan for base of evaporator coil constructed of PVC.

2.08 CONDENSER SECTION

A. Provide internally finned seamless copper tube mechanically bonded to configured aluminum fins. Factory pressure test to 450 psig.

B. Provide vertical discharge, direct drive fans with aluminum blades. Fans shall be statically balanced. Motors shall be permanently lubricated, with integral thermal overload protection in a weather tight casing.

C. Provide condenser coils with hall guards.

2.09 REFRIGERATION SYSTEM

A. Compressor(s): Provide scroll compressor with direct drive operating at 3600 rpm. Integral centrifugal oil pump. Provide suction gas cooled motor with winding temperature limits and compressor overloads.

B. Units shall have cooling capabilities down to 0 degree F as standard.

C. Provide unit with each refrigerant circuit factory-supplied completely piped with liquid line filter-drier, suction and liquid line pressure ports.

2.10 OUTDOOR AIR SECTION

A. Units 6-ton and larger, provide a fully integrated field-installed 100% modulating outside air economizer with unit return and barometric relief air dampers, minimum position setting, preset linkage, wiring harness with plug. Unit operation is through primary temperature controls that automatically modulate dampers to maintain space temperature conditions on units.

B. Provide economizer with comparative enthalpy control to govern economizer changeover.

C. Provide adjustable minimum position control located in the economizer section of the unit.

D. Provide spring return motor for outside air damper closure during unit shutdown or power interruption.

E. Units 5-ton and smaller, provide with a motorized outside air damper with minimum setpoint.

2.11 OPERATING CONTROLS

A. Units shall also be provided with microprocessor unit-mounted DDC controller which when used with an electronic zone sensor provides proportional integral room control. This UCM shall perform all unit functions by making all heating, cooling, and ventilating decisions through resident software logic.

B. Provide factory-installed indoor evaporator defrost control to prevent compressor slugging by interrupting compressor operation.

C. Provide an anti-cycle timing and minimum on/off between stages timing in the microprocessor.

2.12 STAGING CONTROLS

A. Provide NEC Class II, electronic, adjustable zone control to maintain zone temperature setting, provided by DDC temperature control system contractor.

B. Provide programmable electronic microprocessor based temperature control.

1. Temperature control shall incorporate:

a. Automatic changeover from heating to cooling.
b. Set-up for at least 2 - sets of separate heating and cooling temperatures per day.
c. Instant override of setpoint for continuous or timed period from one hour to 31 days.
d. Switch selection features including Fahrenheit display, 12 or 24-hour clock, keyboard disable, remote sensor, fan on-auto.
e. Smart Fan Operation: Allows the unit fan operation to default to the Auto Mode during unoccupied periods, regardless of the Fan switch position.

2. Temperature sensor display shall be capable of:

a. Time of day.
b. Actual room temperature.
c. Programmed temperature.
d. Programmed time.
e. Duration of timed override.
f. Day of week.
g. System mode indication: heating, cooling, low battery, and fan on.

2.13 ROOF CURB

A. Contractor shall provide 18” factory supplied roof curb, 16-gauge perimeter made of zinc coated steel with supply and return air gasketing and wood nailer strips. Ship knocked down and provided with instructions for easy assembly.

B. Curb shall be manufactured in accordance with the National Roofing Contractors Association guidelines.

C. Unit shall have thru-the-curb connections for electrical, condensate, etc.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Contractor shall verify that roof is ready to receive work and opening dimensions are as indicated on shop drawings.

B. Contractor shall verify that proper power supply is available.

3.02 INSTALLATION

A. Contractor shall install in accordance with manufacturer's instructions.

B. Contractor to provide 23/32” OSB sheathing between curb and roof deck (entire area of curb) along with 10” batt insulation between curb and unit for sound attenuation.

C. Mount units on factory built roof-mounting frame providing watertight enclosure to protect ductwork and utility services. Install mounting curb/platform level.

END OF SECTION

SECTION 260000 – ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

A. General: This section specifies several categories of provisions for electrical work including: 1) Certain adaptive expansions of requirements specified in Division 1, 2) General performance requirements within the electrical systems as a whole, and 3) General work to be performed as electrical work, because of its close association.

1.03 SUMMARY OF ELECTRICAL WORK

A. Drawings: Refer to the E-series drawings for graphic representations, schedules and notations showing electrical work.

B. Specifications: Refer to the Division 26 sections for the primary technical specifications of electrical work.

C. General Outline: The facilities and systems of the electrical work can be described (but not by way of limitation) as follows: 1) Power distribution system, including the electrical connecting of equipment not specified to be connected as work of another division, 2) Motor starters and control/protection work as indicated, 3) Systems of branch circuits for lighting and convenience outlets, 4) Fire alarm system.

1.04 COORDINATION OF ELECTRICAL WORK

A. General: Refer to the Division 1 sections for general coordination requirements applicable to the entire work. It is recognized that the contract documents are diagrammatic in showing certain physical relationships which must be established within the electrical work and in its interface with other work including utilities and mechanical work, and that such establishment is the exclusive responsibility of the Contractor.

1. Arrange electrical work in a neat, well organized manner with conduit and similar services running parallel with primary lines of the building construction.

2. Locate operating and control equipment properly to provide easy access, and arrange entire electrical work with adequate access for operation and maintenance.

3. Advise other trades of openings required in their work for the subsequent move-in of large units of electrical work (equipment).

B. Coordination Drawings: For areas, where several elements of electrical (or combined mechanical and electrical) work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings (shop drawings) showing the actual physical dimensions (at accurate scale) required for the installation. Prepare and submit these coordination drawings, if required, prior to purchase –fabrication purchase-fabrication-installation of any of these elements involved in the coordination.

C. The drawings and these specifications are complementary, each one to the other, and what is called for by one shall be as binding as if called for by both. Carefully examine the drawings and specifications and report any discrepancies affecting the work to the Architect. The Architect will issue such written instructions or interpretations as may be required.

D. The electrical plans are diagrammatic, but shall be followed as closely as actual construction and the work of the other trades will allow. Such minor changes as are necessary to make the electrical work conform to the work of other trades and to the building shall be made without cost to the Owner. Minor changes are things such as moving a light switch within a room to be on the proper side of the door swing, or moving a light fixture over one or two ceiling tiles.

E. Branch circuit numbers are for guidance only and need not necessarily conform to the finished job. Actual circuit numbers used shall be recorded on the record documents, and noted correctly on the panel schedules.

F. The maximum number of circuits combined in one raceway shall be three; no circuit shall be combined without prior approval of the Architect or unless specifically shown on the drawings.

1.05 QUALITY ASSURANCE AND STANDARDS

A. General: Refer to the General conditions, Supplementary conditions and Division 1 for general administrative/procedural requirements related to compliance with codes and standards. Specifically, for the electrical work (in addition to standards specified in individual work sections), the following standards are imposed, as applicable to the work in each instance:

1. AWS standards for welding.

2. ANSI C 2, National Electrical Safety Code.

3. ANSI C 73, Dimensions of attachment plugs and receptacles.

4. NECA standards for installation.

5. NEMA standards for materials and products.

1.06 LAWS, CODES AND ORDINANCES

A. All work and material shall conform to the requirements of OSHA and all national and state Laws and ordinances having jurisdiction at the job site. The (NEC) National Electrical Code, 2008 Edition, or latest edition being enforced, shall be strictly adhered to NEC requirements are considered "minimum requirements". Where requirements of the contract documents exceed NEC, the contract documents govern.

B. Contractors shall be duly licensed to perform the work required, as noted in the Supplementary Conditions.

C. Permits are required as noted in the General Conditions.

D. Upon completion of the work, furnish to the Owner a certificate of final inspection and approval from the electrical inspection bureau having jurisdiction.

E. All electrical systems shall be grounded in strict accordance with the requirements of the National Electrical Code.

1.07 INDUSTRY PUBLICATION STANDARDS

A. The publications and standards of the latest issue at the time of bid, of the following organizations, where referenced in these specifications or on the drawings, shall apply:

1. ANSI--- American National Standards Institute

2. ASTM--- American Society of Testing and Materials

3. CBM---- Certified Ballast Manufacturers Association

4. IEEE--- Institute of Electrical and Electronic Architects

5. IPCEA- -Insulated Power Cable Engineer's Association

6. NEC-- -- National Electrical Code

7. NECA--- National Electrical Contractors Association

8. NEMA--- National Electrical Manufacturers Association

9. NESC- - National Electrical Safety Code

10. NFPA-- National Fire Protection Association

11. UL--- -- Underwriters Laboratory

12. IESNA- -Illuminating Engineering Society of North America

1.08 SUBMITTALS

A. General: Refer to the General Conditions, Supplementary Conditions and Division1 for general requirements concerning work related and administrative submittals.

B. General:

1. Submittal data shall be bound in a 3 ring, 8-1/2 inches by 11 inches binder with a table of contents listing items in order of specification section and paragraph number.

2. Submittals shall consist of detailed shop drawings, specifications, catalog "cuts" and data sheets containing physical and dimensioned information, performance data, electrical characteristics, materials used in fabrication, material finish and those which are excluded.

3. Contractor agrees that shop drawing submittals are not change orders; that the purpose of shop drawing submittals by the contractor is to demonstrate that the contractor understands the design concept, that he demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use.

C. Specific Requirements: The following items shall be submitted (as a minimum) in accordance with Paragraphs 1.08.B.1 through 3 (above):

1. Conduit and fittings.

2. 120-600 Volt Wiring

3. Wiring devices and plates.

4. Light fixtures and lamps

5. Panels, starters, contactors, relays, etc.

6. Safety switches.

7. Grounding.

8. Fire alarm equipment and calculations.

1.09 PRODUCT HANDLING

A. Use all means necessary to protect electrical materials and equipment before, during and after installation and to protect the installed work of other trades. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no extra cost .

1.10 WARRANTY, GUARANTEE

A. As described in the General Conditions and Supplementary Conditions the work to be performed shall be guaranteed for a period of one year after substantial completion.

PART 2 – PRODUCTS

A. General: Refer to the General Conditions, Supplementary Conditions and Division 1 sections for general requirements on products, materials and equipment. The following provisions expand the requirements as applicable to electrical work:

1. All material shall be new and shall bear the label of the Underwriter's Laboratories, Inc.,or be listed under reexamination service. All materials shall be of the best grade and latest pattern of manufacturer as specified.

2. All work shall be performed in a neat, workmanlike manner and shall present a neat mechanical appearance when completed.

3. All similar materials and equipment shall be the product of the same manufacturer.

4. Where no specific material, apparatus or appliance is mentioned, any first-class product made by a reputable manufacturer may be used, providing it conforms to the contract requirements and meets the approval of the Architect.

5. Materials and equipment shall be the standard products of manufacturers regularly engaged in the production of such material and shall be the manufacturer's current and standard design.

    a. Altitude: Equipment affected by altitude shall perform satisfactorily for the function intended at the altitude of the project site.

    b. Compatibility: Provide products which are compatible with other products of the electrical work, and with other work requiring interface with the electrical work, including electrical connections and control devices. For exposed electrical work, coordinate colors and finishes with other work.

    c. Substitution: Refer to the General Conditions and Supplementary Conditions for substitution guidelines.

    d. Work Quality: Fabrication, erection and installation of the complete electrical system shall be done in a first class workmanlike manner by qualified personnel experienced in such work and shall proceed in an orderly manner so as not to hold up the progress of the project. The Contractor shall check all areas and surfaces where electrical equipment material is to be installed, removed or relocated and report any unsatisfactory conditions to the Architect before starting work. Commencement of work signifies this Contractor's acceptance of existing conditions. In the acceptance or rejection of the finished installation, no allowance will be made for lack of skill on the part of the workmen.

PART 3 - EXECUTION

3.01 ELECTRICAL SYSTEM IDENTIFICATION

A. General: Provide engraved plastic laminated nameplates at all locations of major units of electrical equipment including panelboards, control centers, alarm and similar systems. Nameplates shall be constructed from laminated phenolic plastic, 1/8 inch thick, 3-ply with black surfaces and white core. Engraving shall be with Roman Gothic lettering, 3/16 inch high, appropriately spaced. Nameplates shall be attached to control devices by use of self tapping flat head chromium plated screws unless approved otherwise. Screw tips on inside of device cover shall be filed to provide a smooth, non-abrasive finish. Gluing, taping and riveting of nameplate to control device is not acceptable. Nameplate information shall include name of panel/equipment, panel electrical characteristics and branch/feeder circuit designation which feeds it. Nomenclature on nameplate(s) shall be similar to the following examples**:**

Panelboards: Panel L1CA
120/208V, 3PH, 4W
CCT. A-28

Air Handler AHU-2
CCT. M2-2

Exhaust Fan EF-5
CCT. P-4

3.02 CUTTING AND PATCHING

A. General: Comply with the requirements of the General Conditions, Supplementary Conditions and Division 1 for the cutting and patching of other work to accommodate the installation of electrical work, except as individually authorized by the Architect, cutting and patching of electrical work to accommodate the installation of other work is not permitted.

B. Structural Limitations: Do not cut structural framing, walls, floors decks and other members intended to withstand stress, except with the Architect's written authorization. Authorization will be granted only where there is no other reasonable method for completing the electrical work, and where the proposed cutting clearly does not materially weaken the structure.

C. Patching: Where patching is required to restore other work because of either cutting or other damage inflicted during the installation of electrical work, engage the original installer to complete the patching of the other work. Restore the other work in every respect, including the elimination of visual defects in exposed finishes, as judged by the Architect.

3.03 EXCAVATING FOR ELECTRICAL WORK

A. General: The work of this article is defined to include whatever excavating and backfilling is necessary to install the electrical work. Coordinate the work with other excavating and backfilling in the same area, including dewatering, flood protection provisions and other temporary facilities. Coordinate the work with other work in the same area, including other underground services (existing and new), landscape development, paving, and floor slabs on grade. Coordinate with weather conditions and provide temporary facilities needed for protection and proper performance of excavating and backfilling.

3.04 CONCRETE FOR ELECTRICAL WORK

A. General: The work of this article is defined to include whatever concrete work is necessary or shown specifically to install the electrical work; but excluding equipment base grouting. Coordinate the work with other work, particularly other concrete work and accessories.

1. General Standards: Except as otherwise indicated, comply with applicable provisions of Division 3 sections for electrical work concrete, including formwork, reinforcement, mix design, materials (if not noted on drawings, use mix designs and materials accepted for Division 3 work where possible), admixtures, accessories (including waterstops), placing of wet concrete, finishing, curing, protecting, testing, submittals, and other requirements of the concrete work. Refer instances of uncertain applicability to the Architect for resolution
before proceeding.

3.05 TESTING AND COORDINATION

A. General: Refer to the General Conditions, Supplementary Conditions and Division 1 sections for general closeout requirements for the project. Upon completion of the work, the various systems operated under load conditions shall be tested for short circuits and grounds in accordance with the method and resistance values outlined in the National Electrical Code and for load balance on feeders and branch circuits.

B. The complete system shall operate satisfactorily in every respect. Make any repairs or adjustments necessary to this end to the satisfaction of the Architect.

C. Furnish all instruments and labor for testing.

D. Coordination with Mechanical: Coordinate closeout operations with closeout of mechanical systems and other power consuming equipment. Accurately record on record documents locations of all conduits which are underground. Test run electrical equipment in coordination with test runs of mechanical system. Clean and lubricate operational equipment. Instruct Owner's operating personnel thoroughly in the operation, sequencing, maintenance and safety/emergency provisions of the electrical systems. Turn over the operations to the Owner's personnel at the time(s) of substantial completion. Until the time of final acceptance of the total work of the contract, respond promptly with consultation and services to assist the Owner's personnel with operation of the electrical systems.

3.06 SAFETY

A. Contractor shall not connect permanent utility power to the electrical distribution system until it is safe. Contractor shall secure all panel locations or utilize lock-out/tag-out procedures. Perform work in accordance with OSHA, NFPA 70, NFPA 70E, NESC and other applicable codes to maintain electrical safety at the construction site.

3.07 MISCELLANEOUS ITEMS

A. Miscellaneous items not covered in these specifications shall be as indicated on the drawings, installed and connected by the proper method and as recommended by the manufacturer.

3.08 RECORD DOCUMENTS

A. During progress of the Work, maintain an accurate record of the installation of the system. Maintain these drawings as called for in the General Conditions, Supplementary Conditions and Division 1 specification section.

END OF SECTION

SECTION 260519 - WIRES AND CABLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the General Conditions, Supplementary Conditions, and Division 1 Specification sections, apply to work of this section.

B. This section is a Division 26 Basic Materials and Methods section, and is part of each Division 16 section making reference to wires and cables specified herein.

1.02 SUMMARY

A. This Section includes wires, cables, and connectors for power, lighting, signal, control and related systems rated 600 volts and less. Wiring for fire alarm is described in its section, wiring for voice, data and video is described in Division 26 specifications.

B. The applications for cable, wire and connectors required on the project are as follows:

1. Power distribution circuitry
2. Lighting circuitry
3. Equipment connections and controls circuitry
4. Special systems

1.03 SUBMITTALS

A. Provide product literature submittal on wiring **.**

1.04 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with provisions of the following code:

1. NFPA 70 "National Electrical Code."

B. Conform to applicable codes and regulations regarding toxicity of combustion products of insulating materials.

C. UL Compliance: Provide components, which are listed and labeled by UL under the following standards.

1. UL Std. 83 Thermoplastic-Insulated Wires and Cables.
2. UL Std. 486A Wire Connectors and Soldering Lugs for Use with Copper Conductors.

D. NEMA/ICEA Compliance: Provide components which comply with the following standards:

1. WC-5 Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

1. Wire and Cable:

   a. American Insulated Wire Corp.
   b. Carol Cable Co. Inc.
   c. Senator Wire and Cable Co.
   d. Southwire Company.

2. Connectors for Wires and Cable Conductors:

   a. AMP
   b. 3M Company
   c. O-Z/Gedney Co.
   d. Square D Company.

2.02 WIRING INSTALLED IN RACEWAYS

A. General: Provide wiring suitable for the temperature, conditions and location where installed. The following criteria is for single-insulated conductors installed in rigid conduit IMC, EMT, PVC, FMC, and liquidtight flexible conduit.

B. Conductors: Provide solid conductors for power and lighting circuits no. 10 AWG and smaller. Provide stranded conductors for sizes no. 8 AWG and larger.

C. Conductor Material: Copper, 98% conductivity, for all wires and cables.

D. Insulation: Provide XHHW-2 insulation for all service entrance wires and, feeders larger than #6. For all other sizes provide THHN/THWN insulation.

Color Coding for Phase Identification:

All wiring #8 AWG and smaller shall have coloring integral to insulation.

Color code on the project is as follows:

208Y/120 Volts	Phase
Black	A
Red	B
Blue	
White	Neutral
Green	Ground

E. For wire #6 AWG and larger that does not require color code integral to its insulation, colored electrical tape may be used for color coding, it shall cover not less than 6" of conductor within enclosure wherever possible. Color coding shall be with Scotch 35 tape by 3M Company or equal.

F. All wire on this project shall be new, unused, in good condition and shall be delivered in standard coils, packages and reels. Samples of all wire shall be submitted by the Contractor when so requested by the Architect for the purpose of determining acceptability of the wire. Wire which has been rejected by the Architect shall not be used again. Such rejected wire shall be removed from the Owner's premises forthwith. Decisions as to the quality of the wire furnished and the acceptance of such wire shall be made by the Architect.

G. Size of conductors shall be not less than indicated. Branch circuit conductors shall be not smaller than No. 12 AWG. Conductors for branch circuits of 120 volts more than 75 feet long, from panel to utilization point shall be No. 10 AWG. The selection of wire sizes for both feeder and branch circuits are used so that voltage drop conforms to the following: Voltage drop in the case of 120/208 volt branch circuits shall not exceed 3.0% at maximum load and 70.0% power factor. Service and feeders shall not exceed 2.0% voltage drop at maximum load and 85% power factor, iron conduit only considered.

H. Remote control wires other than class 2 remote control and signal circuits, shall be no smaller than #14 conductors. Control wires shall be run in separate conduits.

I. Lighting fixtures shall not be used for raceways for circuits other than parallel wiring of fixtures. Install 90 degree C. minimum insulation wire within fixture wireways of fluorescent lighting fixtures.

J . When leaving a metal raceway or conduit in a cabinet, box, switch enclosure, control enclosure or any other like member, conductors shall be protected by means of insulated bushings or end fittings.

K. Conductors may be run in multiple sizes 1/0 to 500 MCM inclusive provided all multiple conductors are the same size, length and type of insulation. When run in multiple they shall be so arranged and terminated as to insure equal division of the total current between all conductors involved.

2.03 CONNECTORS FOR CONDUCTORS

A. Provide UL-listed factory fabricated, solderless metal connectors of sizes, ampacity ratings, materials, types and classes for applications and for services indicated. Use connectors with temperature ratings equal to or greater than those of the wires upon which used.

B. No splices or taps shall be made to any conductors except in outlet boxes, pullboxes, junction boxes, panelboard boxes, manholes, splice boxes or other accessible locations. All taps and splices shall be made with solderless connections and insulated in a manner providing an effective insulation equal to that of the adjoining wire insulation. Any splice or tap shall be made only on such conductors as are a component part of a single circuit.

PART 3 - EXECUTION

3.01 WIRING METHOD

A. Use the following wiring methods:

1. Wire: install insulated conductors in raceways.

B. General: Install electrical cables, wires and connectors in compliance with NEC.

C. Coordinate cable and wire installation work with electrical raceway and equipment installation work, as necessary for proper interface. Prior to pulling cables or conductors into raceways, inspect interiors of raceways; remove burrs, dirt and construction debris.

D. Pull conductors simultaneously together where more than one is being installed in same raceway. Use UL listed pulling compound or lubricant, when necessary. Care shall be exercised while installing wire in conduits so as not to injure conductor insulation. Bending radius of insulated wire or cable shall not exceed manufacturer's recommended values.

E. Use pulling means including, fish tape, cable, rope and basket weave wire/cable grips, which will not damage cables or raceways. Maximum pulling tension on any wire or cable shall not exceed manufacturer's recommended values.

F. For wired systems not requiring wire in conduit, conceal all cable in finished spaces.

G. Conductors shall not be pulled into conduits until after all plastering or concrete work is completed and all conduits in which moisture has collected have been swabbed out.

H. Keep conductor splices to a minimum. Splices shall not be permitted except in junction boxes, outlet boxes or as previously listed in this section. Splices must be accessible.

I. Install splices and taps connectors, which possess equivalent or better mechanical strength and insulation rating conductors being spliced.

J. Use splice and tap conductors which are compatible with the conductor material.

K. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Make terminations so there is no bare conductor at the terminal.

L. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torqueing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL 486A and UL 486B.

3.02 FIELD QUALITY CONTROL

A. Contractor shall perform meggar tests on all service entrance conductors, all feeders and any other conductors 250 kcmil and larger. The contractor shall submit the test results to the Architect within 48 hours of test, and at least 72 hours prior to permanent connection or energization. All test failures shall result in cable replacement.

B. Prior to energization, test wires for electrical continuity and for short circuits.

C. Prior to Contractor connecting of utility permanent power to the permanent electrical distribution system, all panels and wiring circuits shall be fully terminated and all panel covers completely installed. If the above cannot be complied with, and the Contractor deviates from this, then he bears all the responsibility to provide lock-out/tag-outs and security of electrical rooms or rooms containing panels.

D. Subsequent to wire and cable hook-ups, energize circuits and demonstrate proper functioning. Correct malfunctioning units, and retest to demonstrate compliance.

END OF SECTION

SECTION 260526 - GROUNDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the General Conditions, Supplementary Conditions, and Division 1 Specification sections, apply to work of this section.

B. Division 26 Basic Materials and Methods sections apply to work of this section.

1.02 DESCRIPTION OF WORK

A. Extent of grounding is indicated by drawings.

B. Types of grounding in this section include the following:

1. Enclosures
2. Systems
3. Equipment

1.03 QUALITY ASSURANCE

A. NEC Compliance: Comply with NEC as applicable to electrical grounding.

B. ANSI/UL Compliance: Comply with requirements of ANSI/UL and UL standards pertaining to grounding. Provide products which have been UL listed and labeled.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's data on grounding devices and accessories.

PART 2 - PRODUCTS

2.01 GROUNDING

A. Materials and Components:

1. General: Except as otherwise indicated, provide for each electrical grounding indicated, with assembly of materials including, but not necessarily limited to, cables/wires, connectors, terminals (solderless lugs), grounding rods/electrodes and plate electrodes, bonding jumper braid, and other items and accessories needed for complete installation. Where more than one type meets indicated requirements, selection is installer's option. Where materials or components are not otherwise indicated, comply with NEC, NEMA and established industry standards for applications indicated.

B. Electrical Bonding Jumpers:

1. Bonding Jumper Braid: Copper braided tape, constructed of 30 gauge bare copper wires and properly sized for indicated applications.
2. Flexible Jumper Strap: Flexible flat conductor, 480 strands of 30 gauge bare copper wire; 3/4" wide, 9-1/2" long; 48.250 CM. Protect braid with copper bolt hole ends with holes sized for 3/8 dia. bolts.

3. Electrical Grounding Conductors: Unless otherwise indicated, provide electrical grounding conductors for grounding connections matching power supply wiring materials and sized according to NEC. All conduits and ducts shall have grounding conductors as noted on the drawings or required by NEC.

4. Bonding Plates, Connectors, Terminals and Clamps: Provide electrical bonding plates, connectors, terminals and clamps as recommended by bonding plate, connector, terminal and clamp manufacturer for indicated applications.

PART 3 - EXECUTION

3.01 INSTALLATION OF ELECTRICAL GROUNDING

A. General: Install electrical grounding systems as indicated on the drawings, in accordance with recognized industry practices to ensure grounding protection complies with requirements. Comply with requirements of NEC, and NEMA standards for installation of grounding systems and devices. All non-metallic conduits and ducts shall have grounding conductors as noted on the drawings or required by NEC.

B. Coordinate with other electrical work as necessary to interface installation of electrical grounding system and ground-fault protection devices with other work.

C. Install clamp-on connectors only on thoroughly cleaned metal contact surfaces, to ensure electrical conductivity and circuit integrity.

3.02 EQUIPMENT GROUNDING SYSTEM

A. General: Provide a complete equipment grounding system in accordance with the minimum code requirements and as further indicated on the drawings or specified. The equipment ground (green conductor) consists of metallic connections to ground non-current carrying metal parts of the wiring system or apparatus connected to the system.

B. Conduits: Where metallic conduits terminate without mechanical connection, provide ground bushing connected with a bare copper conductor to the ground bar in the electrical equipment. Install grounding conductor in each conduit or duct and in all conduit that does not have a built-in ground conductor. Those raceways used for telephone, sound, or low-voltage signals do not require a grounding conductor. All conduits terminating at communication backboards shall be provided with grounding bushings.

C. Feeders and Branch Circuits: Provide a separate green insulated equipment grounding conductor for each single or three-phase feeder and each branch circuit with a three-phase protective device. Provide a separate green insulated equipment ground conductor for single phase branch circuits where indicated on the drawings. Where there are parallel feeders installed in more than one raceway each raceway shall have a green insulated equipment ground conductor.

D. Devices: Where a branch circuit ground conductor is not available, install a minimum No. 12 green insulated equipment bonding conductor. Bond conductor from a grounding terminal in the respective outlet or junction box to the green ground terminal of all receptacles. This will be required regardless of receptacle being approved for application without separate bond conductor.

E. Motors: Install a separate green insulated equipment grounding conductor from each separate starter through the conduit and flexible conduit to the ground terminal in the connection box mounted on the motor.

3.03 GROUNDING CONDUCTORS

A. The grounding conductors shall be insulated copper, sized in accordance with NEC 250.122. The conductors shall be continuous without joint or splice and shall be installed in conduit with the conduit bonded to the conductor at each end. Equipment grounding conductors shall be green insulated conductors with insulation equivalent to the insulation on the associated phase conductor, but not less than Type THW. The equipment grounding conductor or straps shall be sized in accordance with NEC. Where one feeder serves a series of panelboards or transformers, the equipment grounding conductor shall be continuous without splices. All connections shall be available for inspection and maintenance.

1. Connections: Clean surfaces thoroughly to bare metal before applying ground lugs or clamps. Where galvanizing is removed from metal it shall be painted or touched up with "Galvanox", or equal. All grounding system connections which are made in inaccessible locations, i.e. underground, within concrete slabs, shall be made with Cadweld connections or approved equal.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 260533 – ELECTRICAL BOXES AND FITTINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, the General Conditions, Supplementary Conditions, and Division 1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

A. Extent of electrical box and associated fitting work is indicated by drawings.

B. Types of electrical boxes and fittings specified in this section include the following:

1. Outlet boxes
2. Junction boxes
3. Pull boxes
4. Bushings
5. Locknuts
6. Knockout closures

1.03 QUALITY ASSURANCE

A. NFPA Compliance: Comply with NEC as applicable to construction and installation of electrical boxes and fittings.

B. UL Compliance: Comply with applicable requirements of UL 50, UL 514-Series, and UL 886 pertaining to electrical boxes and fittings. Provide electrical boxes and fittings which are UL-listed and labeled.

C. NEMA Compliance: Comply with applicable requirements of NEMA Stds/ Pub No.'s OS1, OS2 and Pub 250 pertaining to outlet and device boxes, covers and box supports.

D. Federal Specification Compliance: Comply with applicable requirements of FS W-C-586, "Electrical Cast Metal Conduit Outlet Boxes, Bodies and Entrance Caps".

1.04 SUBMITTALS

A. Product Data: Submit manufacturer’s data on electrical boxes and fittings.

PART 2 - PRODUCTS

2.01 FABRICATED MATERIALS - STEEL

A. Outlet Boxes: Provide galvanized coated flat rolled sheet-steel outlet wiring boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct outlet boxes with mounting holes, and with cable and conduit-size knockout openings in bottom and sides. Provide boxes with thread screw holes, with corrosion-resistant cover and grounding screws for fastening surface and device type box covers, and for equipment type grounding.

B. Outlet Box Accessories: Provide outlet box accessories as required for each installation, including box support mounting ears and brackets, wallboard hangers, box extension rings, fixture studs, cable clamps and metal straps for supporting outlet boxes, which are compatible with outlet boxes being used to fulfill installation requirements of individual wiring situations.

C. Device Boxes: Provide galvanized coated flat rolled sheet-steel non-gangable device boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct device boxes for flush mounting with mounting holes, and with cable-size knockout openings in bottom and ends, and with threaded screw holes in end plates for fastening devices. Provide cable clamps and corrosion-resistant screws for fastening cable clamps, and for equipment type grounding.

D. Device Box Accessories: Provide device box accessories as required for each installation, including mounting brackets, device box extensions, switch box supports, plaster ears, and plaster board expandable grip fasteners, which are compatible with device boxes being utilized to fulfill installation requirements for individual wiring situations.

E. Boxes for use with raceway systems shall not be less than 2-1/8 inches deep except where shallower boxes required by structural conditions are approved. Boxes for other than lighting fixture and power shall be not less than 4 inches square.

F. Outlet boxes for various uses shall be Appleton boxes, or equal in quality and function of the following order; Appleton nos. listed first, universal numbers listed in parenthesis:

1. In standard partitions and suspended ceilings for lighting fixture installations where 3/4" conduits are employed, #40D3/4 (#54l7l 3/4) boxes shall be used; for 1/2" conduits #40D1/2 (#54171 1/2) shall be used.

2. In standard partitions and suspended ceiling areas where conduits of 1" size or greater are employed, #4SD1 (#52171-1) boxes having a depth of 2-1/8" shall be used.

3. Wall switch and convenience outlets in standard partitions and where 3/4" conduits are employed, #4SD 3/4 (#52171-3/4) boxes shall be used; for 1/2" conduits #4SD 1/2 (#52171-1/2) boxes shall be used.

4. In thin partitions measuring 3-1/2" or less and where 3/4" conduits are employed, #4S 3/4 (#52151 3/4) boxes shall be used; for 1/2" conduits #4S 1/2 (52151 1/2) boxes shall be used.

5. Voices, Data, Video outlets shall be as detailed on the plans and described in Division 26 specifications.

G. The following requirements shall apply to exposed as well as concealed conduit systems. When "gang" arrangements of outlets are employed, 2-3/4" deep "gang" boxes shall be used. These "gang" boxes shall have dimensions which are not smaller than those shown in the following table.

Number in Gang	Size
3	4 - 1/2" X 8- 5/8"
4	4 - 1/2" X 10- 1/2"
5	4 - 1/2" X 12- 1/4"
6	4 - 1/2" X 14"
7	4 - 1/2" X 16"
8	4 - 1/2" X 17- 3/4"

Where "gang" boxes are located in woodwork or in wooden partitions, the depth of the boxes (shall) may be reduced to 1 - 3/4"

H. Raintight Outlet Boxes: Provide corrosion-resistant cast metal raintight outlet wiring boxes, of types, shapes and sizes, including depth of boxes, with threaded conduit holes for fastening electrical conduit,

I. Junction and Pull Boxes: Provide galvanized code gauge sheet steel junction and pull boxes with screw on covers; of types, shapes and sizes to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws and washers.

J. Terminal Cabinets: Junction boxes called for to be used as terminal cabinets for special systems (Fire Alarm) shall be of NEMA Type I, surface mounting minimum 16 gauge steel thickness as manufactured by Circle A-W Products or approved equal. Boxes shall be provided with a ¾" plywood thick backboard sized for full area of box wall mounting surface. Furnish with hinged cover. Furnish terminal blocks where required or noted on the drawings for all wire splicing or terminations, Kulka 672 or equal in quality and construction. Number of terminal blocks shall be as required for all wires in terminal cabinets plus 50% spare.

K. Conduit Bodies: Provide galvanized cast-metal conduit bodies, of types, shapes and sizes, to suit respective locations and installation, constructed with threaded-conduit-entrance ends, removable covers, and corrosion-resistant screws.

L. Bushings, Knockout Closures and Locknuts: Provide corrosion resistant punched steel box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes to suit respective installation requirements and applications.

PART 3 - EXECUTION

3.01 PERMITTED USES

A. Steel boxes shall be used in all areas.

3.02 INSTALLATION OF BOXES AND FITTINGS

A. General: Install electrical boxes and fittings as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.

B. Coordinate installation of electrical boxes and fittings with wire/cable and raceway work.

C. Provide weatherproof outlets for interior and exterior locations exposed to weather or moisture.

D. Provide knockout closures to cap all unused knockout holes where blanks have been removed.

E. Install electrical boxes and conduit bodies in those locations, which ensure ready accessibility to enclosed electrical wiring.

F. Avoid installing boxes back-to-back in walls. Provide not less than 6" (150 mm) horizontal separation. If boxes are installed with less than 6" separation in fire rated walls then the contractor shall provide fire stop material around the boxes.

G. Avoid installing aluminum products in concrete.

H. Position recessed outlet boxes accurately to allow for surface finish thickness.

I. Boxes shall be square and flush with finished surfaces and suitably anchored in place. The front edges of the boxes or plaster rings shall be flush with the finished wall or ceiling line or if installed in walls and ceilings of combustible construction, not more than 1/4 inch back of same. Mount boxes with the long axis of devices vertical, unless specifically noted otherwise.

J. Boxes in plastered walls and ceilings shall be provided with plaster rings. A multiple of box extensions and/or covers will not be permitted. Rough-in installations which require box extensions shall be abandoned and the rough-in work redone. Install in a rigid and satisfactory manner with suitable metal bar hangers, box cleats, adjustable box hangers, etc. Use wood screws on wood, expansion shields on masonry and machine screws on steel work.

K. Avoid using round boxes where conduit must enter box through side of box, which would result in difficult and insecure connections when fastened with locknut or bushing on rounded surface.

L. Fasten boxes firmly and rigidly to substrates, or structural surfaces to which attached, or solidly embed electrical boxes in concrete or masonry. Wire shall not be used to anchor boxes to structure.

M. Provide electrical connections for installed boxes. Where several feeders pass through a common pullbox, the feeders shall be tagged to indicate clearly the electrical characteristics, circuit number, and panel designation.

N. Splices in switch boxes shall be kept to a minimum.

O. On all ceiling outlets involving fixture hanging from boxes, 3/8" no-bolt fixture studs shall be used for light load and 1/2" no-bolt fixture studs shall be used for heavy loads.

P. Where an atmosphere laden with moisture exists, Type FD Series Unilet Boxes shall be used with standard devices. The covers employed shall be adapted for the particular application involved. In such cases, brass screws shall be used and due provision shall be made in all cases, for the escape of any condensate which might accumulate.

Q. Mounting Heights: The mounting height of a wall mounted outlet box shall mean the height from the finished floor to the horizontal center line of the cover plate. On exposed tile, block or brick construction, mount outlet boxes at the nearest bed joint to the mounting height indicated. Any change in height made by the Contractor shall not place the box out of the range of acceptable height to comply with ADA. Verify with the Architect. Once mounting height is adjusted because of mortar bed joint, all similar wiring devices within the room or within view shall be adjusted accordingly.

R. Wall Mounted Switch, Receptacle and Signal Outlets: On columns, pilasters, etc., mount so the centers of the columns are clear for future installation of partitions. Install outlet boxes near the doors on the lock sides as shown on Architectural drawings, unless locations are shown otherwise because of sidelites, and approved by the Architect.

S. Pull Boxes: Provide additional pull boxes wherever necessary to meet requirements for maximum length of conduit runs and maximum number of bends. Conduit runs with not more than two ninety degree bends shall not exceed 200 feet.

T. Grounding: Upon completion of installation, properly ground electrical boxes and demonstrate compliance with requirements.

U. Identification: All junction and pull boxes above the ceiling shall be labeled as to the circuits contained. Blank steel covers on 4 square boxes may be labeled with permanent black marker, hand written with panel name and circuit numbers unless noted otherwise on the plans. Larger boxes may have handwritten labeling if neatly performed.

V. Grounding: Upon completion of installation work, properly ground electrical boxes and demonstrate compliance with requirements.

W. Identification: Identify junction and pull boxes installed for fire alarm wiring by painting red. Paint box and cover.

END OF SECTION

SECTION 260535 - RACEWAYS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the General Conditions, Supplementary Conditions, and Division 1 Specification Sections, apply to work of this section.

B. This section is a Division 26 Basic Materials and Methods section, and is part of each Division 16 section making reference to electrical raceways specified herein.

1.02 SUMMARY

A. This Section includes raceways for electrical wiring 600v and below, control wiring, and Fire Alarm System Wiring. Types of raceways in this section include the following:

1. Type FMC conduit NEC Article 348.
2. Type EMT conduit NEC Article 358.
3. Liquidtight flexible conduit NEC Article 350.
4. Rigid metal conduit NEC Article 344.
5. Rigid nonmetallic conduit NEC Article 352.
6. Intermediate Metal Conduit NEC Article 342.

B. Wiring methods shall be as described by the Division 16 specifications and permitted by the State of New Mexico Electrical Code. Selection of wiring method is at the contractor's option. Use of Type "NM" cable, NEC Article 334 is prohibited for this project.

1.03 SUBMITTALS

A. General: Submit the following in accordance with the General Conditions, Supplementary Conditions and Division 1 Specifications Sections.

B. Product Data for the following products:

1. Metal conduits and fittings.
2. Flexible conduits and fittings.
3. PVC conduits and fittings.

1.04 QUALITY ASSURANCE

A. Electrical Component Standard: Components and installation shall comply with NFPA 70 "National Electrical Code."

B. NEMA Compliance: Comply with applicable portions of NEMA standards pertaining to raceways.

C. UL Compliance and Labeling: Comply with applicable requirements of UL standards pertaining to electrical raceway systems. Provide raceway products and components listed and labeled by UL, ETL, or CSA.

1.05 SEQUENCING AND SCHEDULING

A. Coordinate with other Work, including metal framing, wood framing and concrete deck installation, as necessary to interface installation of electrical raceways and components with other Work.

PART 2 - PRODUCTS

2.01 MATERIALS AND COMPONENTS

A. General: For each electrical raceway system indicated, provide assembly of conduit, tubing or duct, and fittings including, but not necessarily limited to, connectors, couplings, offsets, elbows, straps, bushings, expansion joints, hangers and other components and accessories as needed for a complete system. Minimum size conduit shall be 1/2".

B. Each length of rigid/IMC conduit shall have both ends threaded. The extremities shall, moreover, be reamed to remove all burrs and sharp edges. Each length of conduit shall be marked with the name and trademark of the manufacturer and the stamp of approval of the Underwriters Laboratories, Inc.

C. Where shown on the plans or specifically called for in the specifications, electrical conductors shall be installed in hot-dipped galvanized rigid steel conduit or IMC. Exposed conduit in damp OUTDOOR locations shall be rigid steel conduit or IMC. If EMT conduit is used outdoors as part of the new construction, it shall be REMOVED wherever found and replaced with rigid steel conduit. Each length of conduit shall be provided with one coupling attached and the threads of the end of the conduits having no coupling shall be protected by use of suitable thread protectors. All couplings and other fittings such as bends or elbows shall be protected against corrosion in the same manner in which the conduit itself is protected. All bends for conduit of 1-1/4" or larger shall either be factory manufactured elbows or be made by the use of a bending machine meeting the approval of Architect. Under no circumstances shall any bend be installed if the conduit from which it is fabricated is injured in any manner in the course of, or by, the bending process. The radius of the curve of the inner edge of any field bend shall not be less than the recommendation of the National Electrical Code. Under no circumstances shall the internal cross sectional area of any conduit be appreciably reduced by any bending process.

D. Rigid steel conduit, IMC and EMT fittings shall be either steel or malleable iron only.

E. EMT connectors and couplings shall be of the steel set screw or threaded compression type, having steel gland nuts. Connectors shall have insulated throats.

F. 1/2" and 3/4" trade size conduits may be installed in concrete slabs, as near the center of the slab as possible. Material shall be IMC, rigid, or PVC.

G. Conduits installed in direct contact with the earth, except where PVC is used, shall be rigid galvanized steel, field spirally wrapped (half-lapped) with one layer of 1" wide 3M Scotchrap #50 plastic tape with a 50 percent overlap, including all joints or couplings, or shall be coated with a bonded 20 mil minimum thickness PVC, permanently fused at the factory, Pittsburgh Standard Co., "Plasti-Bond", or equal. Contractor shall patch with Scotchrap tape all holes or abrasions to conduit tape wrapping which expose the metal conduit surface. All buried wrapped or coated conduit shall be checked by Owner's duly authorized representative prior to covering up with fill. Branch circuit and feeder conduit runs when direct buried may be PVC schedule 40. The Contractor has the option of PVC conduit or rigid metal tape wrapped conduit. EMT conduit is not acceptable for burial applications. If PVC conduit is used, transition to rigid metal tape wrapped conduit shall be made before beginning sweep for conduit stub-up. Metal conduit must be wrapped throughout buried portion, including risers.

2.02 METAL CONDUIT AND TUBING

A. General: Provide metal conduit, tubing and fittings of types, grades, sizes and weights (wall thicknesses) for each service indicated. Where types and grades are not indicated, provide proper selection determined by Contractor to fulfill wiring requirements and comply with applicable portions of NEC for raceways.

B. Sealing Fittings: Threaded, zinc or cadmium plated, cast or malleable iron type for steel conduits.

C. Rigid Aluminum Conduit: Not acceptable on this project.

D. Rigid Steel Conduit: ANSI C80.1

E. Intermediate Steel Conduit: UL 1242. Intermediate metal conduit (IMC) may be used in lieu of rigid conduit, but only where permitted by 2005 NEC, and with manufacturer's recommended fittings. Threading and bending of IMC shall be with approved equipment for the purpose and as recommended by the manufacturer of the raceway. Threadless fittings shall not be permitted for rigid or IMC.

F. Electrical Metallic Tubing and Fittings: ANSI C80.3. Steel tubing, in lieu of rigid or IMC conduit, may be used in sizes up to and including 4 inches in all interior work, except that it shall not be used in concrete, underground, in any damp or outdoor locations, or in any locations where there is a likelihood of mechanical injury.

G. Flexible Metal Conduit: UL 1, aluminum, not acceptable.

H. Flexible Metal Conduit: UL 1, with a separate grounding bond wire installed in the flex in addition to other wires.

I. Flexible Metal Conduit Fittings: Either steel or malleable iron only, with insulated throats.

J. Liquid-Tight Flexible Metal Conduit and Fittings: UL 360. Provide liquid-tight flexible metal conduit; constructed of single strip, flexible, continuous, interlocked, and double-wrapped steel, galvanized inside and outside; coated with liquid-tight jacket of flexible polyvinyl chloride (PVC) and a continuous copper bonding conductor wound spirally between the convolutions. To be UL labeled Sealtite type UA or Liquidtite type LA.

K. Liquid tight flexible conduit fittings shall be provided with threaded grounding cone, a steel, nylon or equal plastic compression ring and a gland for tightening. Either steel or malleable iron only with insulated throats and male thread and locknut or male bushing with or without "O" ring seat.

2.03 NONMETALLIC CONDUIT AND DUCTS

A. General: Provide nonmetallic conduit, ducts and fittings of types, sizes and weights (wall thicknesses) for each service indicated. Where types and grades are not indicated, provide proper section determined by Contractor to fulfill wiring requirements, and comply with applicable portions of NEC for raceways.

B. Rigid Nonmetallic Conduit (PVC): NEMA TC 2 and UL 651, Schedule 40 or 80 PVC.

C. PVC Conduit and Tubing Fittings: NEMA TC 3; match to conduit or conduit/tubing type and material.

D. Conduit, Tubing and Duct Accessories: Types, sizes, and materials complying with manufacturer's published product information. Mate and match accessories with raceway.

2.04 CONDUIT BODIES

A. General: Types, shapes, and sizes as required to suit individual applications and NEC requirements. Provide matching gasketed covers secured with corrosion-resistant screws.

B. Metallic Conduit and Tubing: Use metallic conduit bodies. Use bodies with threaded hubs for threaded raceways.

C. Conduit Bodies 1 Inch and Smaller: Use bodies with compression-type EMT connectors.

PART 3 - EXECUTION

3.01 WIRING METHOD

A. Outdoors: Use the following wiring methods:

1. Exposed: IMC or rigid metal conduit.

2. Underground: IMC, rigid metal conduit, or PVC.

3. Connection to Vibrating Equipment: Including transformers and hydraulic, pneumatic, or electric solenoid or motor-driven equipment: liquidtight flexible metal conduit.

4. Indoors or Outdoors: Connection to vibrating equipment and hydraulic, pneumatic, or electric solenoid or motor-driven equipment in moist or humid location or corrosive atmosphere, or where subject to water spray or dripping oil, grease, or water: liquidtight flexible metal conduit.

B. Indoors: Use the following wiring methods:

1. Connection to Vibrating Equipment: Including transformers and hydraulic, pneumatic or electric solenoid or motor-operated equipment: flexible metal conduit.

2. Exposed: EMT, IMC, or rigid metallic conduit.

3. Concealed: EMT, IMC, or rigid metallic conduit.

4. Slab on grade concrete: IMC, rigid, or PVC.

3.02 INSTALLATION

A. General: Install electrical raceways for all wiring circuits in accordance with manufacturer's written instructions, applicable requirements of NEC, and as follows:

B. Conceal raceways, unless indicated otherwise, within finished walls, ceilings, and floors. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot water pipes. Install raceways level and square and at proper elevations. Run all conduits in a manner satisfactory to the Architect. On exposed systems, support shall be provided at intervals of 6 feet or closer depending on wiring method. On concealed conduits, support shall be provided at intervals of no more than 8 feet or closer depending on wiring method. No feeder conduit run shall be longer than 80 feet between junction boxes, cabinets or circuit interrupting devices unless there are no direction changes, and only a straight-in-line pull of wire is involved. In such straight-in-line runs between junction boxes, cabinets or circuit interrupting devices, a run not to exceed 120 feet in length may be made.

C. Elevation of Raceway: Install horizontal raceway runs above water and steam piping to the fullest extent possible.

D. Complete installation of electrical raceways before starting installation of conductors within raceways. All ends of the conduit shall be properly reamed to remove rough edges and whenever a conduit enters a box or other fitting, it shall be securely fastened by the use of a locknut inside and outside of the box or fitting. An approved bushing shall be installed on the ends of all conduit in such a manner as to protect the wire from abrasion. Completed raceways shall be inspected; inspect interiors of raceways, remove burrs, moisture, and dirt and construction debris.

E. Support raceways rigidly by means of straps or hangers best suited for the work. Conduit shall <u>not</u> be supported from ceiling support system. Multiple runs of conduits shall be racked on trapeze hangers. <u>All</u> support materials shall be rustproof. Perforated tape or wire shall not be used.

<u>SUPPORTS SHALL COMPLY WITH NEW MEXICO ELECTRICAL CODE</u>.

A. Prevent foreign matter from entering raceways by using temporary closure protection. Seal raceways after installation to prevent accumulation of water, dirt and other foreign materials. Conduit in which such accumulation occurs shall be cleaned to the satisfaction of the Architect or replaced.

B. Conduit crossing expansion joints shall be provided with suitable expansion fitting.

C. Protect stub-ups from damage where conduits rise from floor slabs. Arrange so curved portion of bends is not visible above the finished slab. Conduit crushed or otherwise deformed shall not be installed and shall be removed from the job site without delay.

D. Make bends and offsets so the inside diameter is not effectively reduced. Unless otherwise indicated, keep the legs of a bend in the same plane and the straight legs of offsets parallel.

E. Use raceway fittings that are of types compatible with the associated raceway and suitable for the use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings except as otherwise indicated.

F. Run concealed raceways with a minimum of bends in the shortest practical distance considering the type of building construction and obstructions, except as otherwise indicated.

G. All non-metallic conduit or duct runs shall have a ground bonding conductor, size as noted or required by NEC. The bond or equipment served shall be bonded to grounding conductor to provide a good ground return path to service panel.

H. Install exposed raceways parallel and perpendicular to nearby surfaces or structural members and follow the surface contours as much as practical. Paint conduit that will be exposed to the public. Paint shall match surface color.

I. Run exposed, parallel, or banked raceways together. Make bends in parallel or banked runs from the same center line so that the bends are parallel. Factory elbows may be used in banked runs only where they can be installed parallel. This requires that there be a change in the plane of the run such as from wall to ceiling and that the raceways be of the same size. In other cases provided field bends for parallel raceways.

J. Join raceways with fittings designed and approved for the purpose and make joints tight. Where joints cannot be made tight, use bonding jumpers to provide electrical continuity of the raceway system. Make raceway terminations tight. Where terminations are subject to vibration, use bonding busings or wedges to assure electrical continuity. Where subject to vibration or dampness, use insulating bushings to protect conductors.

K. Tighten set screws of threadless fittings with suitable tool.

L. Terminations: Where raceways are terminated with locknuts and bushings, align the raceway to enter squarely and install the locknuts with dished part against the box. Where terminations cannot be made secure with one locknut, use two locknuts, one inside and one outside the box.

M. Where terminating in threaded hubs, screw the raceway or fitting tight into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align the raceway so the coupling is square to the box, and tighten the chase nipple so no threads are exposed.

N. Install pull wires in empty raceways over 4 feet long. Use no. 14 AWG zinc-coated steel or monofilament plastic line having not less than 200-lb tensile strength. Leave not less than 12 inches of slack at each end of the pull wire. Identify each terminus of pull wire with linen tags marked with complete information as to service and location of the terminus of the line/wire.

O. Install raceway sealing fittings in accordance with the manufacturer's written instructions. Locate fittings at suitable, approved, accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points and elsewhere as indicated:

1. Where conduits pass from warm locations to cold locations, such as the boundaries of refrigerated spaces and air-conditioned spaces.

2. Where required by the NEC.

P. Conduit Stub-up Through Roof: All conduits up through roof shall be properly sealed. Where applicable Contractor shall provide special adapters designed for the specific type of roofing system. See the drawings for special details and instructions for this specific purpose.

Q. Flexible Connections: Use short length (maximum of 6 ft.) of flexible conduit for recessed and semi recessed lighting fixtures, where EMT and FMC is used, for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquidtight flexible metal conduit in wet locations. Install separate ground conductor across flexible connections.

R. Conduits above acoustical "lay-in" ceilings shall be anchored to the building structure and not on the ceiling or ceiling support wires. Wire shall not be used to anchor boxes to structure. Junction boxes shall be installed on the structural members and flexible conduit, extended down to light fixtures, length not to exceed 6 ft.

S. Do not install aluminum conduit.

T. PVC externally coated rigid steel conduit: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduit.

U. Lighting fixtures shall not be used for raceways for circuits other than parallel wiring of fixtures.

V. Fire Barriers: Contractor shall be responsible for sealing all conduit penetrations through fire rated walls and ceilings. The seal shall be acceptable to Architect and maintain the integrity of the wall or ceiling fire rating. 3M brand fire barrier caulk #CP 25 and putty #303 are considered acceptable for this purpose. Refer to Architectural drawings for these locations.

3.03 ADJUSTING AND CLEANING

A. Upon completion of installation of raceways, inspect interiors of raceways; clear all blockages and remove burrs, dirt, and construction debris.

END OF SECTION

SECTION 260553 – ELECTRICAL IDENTIFICATION

PART 1 -GENERAL

1.01 SECTION INCLUDES

A. Nameplates and labels.

B. Wire and cable markers.

C. Conduit markers.

1.02 RELATED SECTIONS

A. Painting.

1.03 REFERENCES

A. Quality Control: Requirements for references and standards.

B. ANSI/NFPA 70 - National Electrical Code.

1.04 SUBMITTALS – None Required.

1.05 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.

PART 2 - PRODUCTS

2.01 NAMEPLATES AND LABELS

A. Nameplates: Engraved three-layer laminated plastic, white letters on black background.

B. Locations:

1. Each electrical distribution and control equipment enclosure. Provide new labels on all equipment, existing and new.

2. Communication cabinets.

C. Letter Size:

1. Use 1/8 inch letters for identifying individual equipment and loads.

D. Labels: Embossed adhesive tape, with 3/16 inch white letters on black background.

PART 3 - EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive nameplates and labels.

3.02 APPLICATION

A. Install nameplate and label parallel to equipment lines.

B. Secure nameplate to equipment front using screws, rivets, or adhesive.

C. Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.

D. Color:

a. 208 Volt System: Black, Red, Blue, White, Green.

END OF SECTION

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Branch circuit panelboards.

1.02 RELATED SECTIONS

A. Section 26 05 26- Grounding.

B. Section 26 05 53 - Electrical Identification.

1.03 REFERENCES

A. NECA Standard of Installation (published by the National Electrical Contractors Association).

B. NEMA AB1 - Molded Case Circuit Breakers.

C. NEMA ICS 2 - Industrial Control Devices, Controllers and Assemblies.

D. NEMA PB 1 - Panelboards.

E. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

F. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment (published by the International Electrical Testing Association).

G. NFPA 70 - National Electrical Code.

1.04 SUBMITTALS FOR REVIEW

Submittals: Procedures for submittals.

A.. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker arrangement and sizes.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.06 REGULATORY REQUIREMENTS

A**.** Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc., as suitable for the purpose specified and indicated.

1.07 MAINTENANCE MATERIALS

A. Section 01700 - Contract Closeout.

B. Furnish two of each panelboard key.

PART 2 - PRODUCTS

2.01 BRANCH CIRCUIT PANELBOARDS

A. Manufacturers:

a. Square D.
b. Cutler-Hammer.
c. General Electric.
d. Siemens.
e. Substitutions: Permitted.

B. Description: NEMA PB1, circuit breaker type, lighting and appliance branch circuit panelboard.

C. Panelboard Bus: Copper ratings as indicated. Provide copper ground bus in each panelboard; provide insulated ground bus where scheduled.

D. Minimum Integrated Short Circuit Rating: 22,000 amperes rms symmetrical for 240 volt panelboards.

E. Molded Case Circuit Breakers: NEMA AB 1, bolt-on type thermal magnetic trip circuit breakers, with common trip handle for all poles, listed as Type SWD for lighting circuits, Type HACR for air conditioning equipment circuits, Class A ground fault interrupter circuit breakers where scheduled. Donot use tandem circuit breakers.

F. Current Limiting Molded Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole, coordinated with automatically resetting current limiting elements in each pole. Interrupting rating 100,000 symmetrical amperes,let-through current and energy level less than permitted for same size Class RK-5 fuse.

G. Enclosure: NEMA PB 1, Type 1.

H. Cabinet Box: 6 inches (153 mm) deep, 20 inches wide for 240 volt and less panelboards.

I. Cabinet Front: As indicated on panel schedules. Finish in manufacturer's standard gray enamel.

PART 3- EXECUTION

3.01 INSTALLATION

A. Install panelboards in accordance with NEMA PB 1.1 and the NECA "Standard of Installation."

B. Install panelboards plumb. Install recessed panelboards flush with wall finishes.

C. Height: 6 feet (1800 mm) to top of panelboard; install panelboards taller than 6 feet (1800 mm) with bottom no more than 4 inches (100 mm) above floor.

D. Provide filler plates for unused spaces in panelboards.

E. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.

F. Provide engraved plastic nameplates under the provisions of Section 26 05 53.

G. Provide spare conduits out of each recessed panelboard to an accessible location above ceiling. Minimum spare conduits: 3 empty 3/4 inch. Identify each as SPARE.

H. Ground and bond panelboard enclosure according to Section 26 05 26.

3.02 ADJUSTING

A. Contract Closeout: Adjusting installed work.

B. Measure steady state load currents at each panelboard feeder; rearrange circuits in the panelboard to balance the phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 262419 – MOTOR AND CIRCUIT DISCONNECTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the General Conditions, Supplementary Conditions, and Division 1 Specification sections, apply to work of this section.

B. This section is a Division 26 Basic Materials and Methods section, and is part of each Division 16 section making reference to motor and circuit disconnect switches specified herein.

1.02 DESCRIPTION OF WORK

A. The extent of motor and circuit disconnect switch work is indicated by drawings and schedules.

B. The types of motor and circuit disconnect switches in this section include the following:

1. Equipment disconnects
2. Appliance disconnects
3. Motor-circuit disconnects

1.03 QUALITY ASSURANCE

A. NEC Compliance: Comply with NEC as applicable to construction and installation of electrical motor and circuit disconnect switches.

B. UL Compliance and Labeling: Provide motor and circuit disconnect switches which have been UL listed and labeled.

C. NEMA Compliance: Comply with applicable requirements of NEMA Stds. Publ. No. KS1.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's data including specifications, installation instructions and general recommendations for each type of motor and circuit disconnect switch required.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following or equal (for each type of switch):

1. Cutler-Hammer, Inc.
2. General Electric Co.
3. Square D Company

B. Motor and circuit disconnects larger than 60A shall be side hinged.

2.02 FABRICATED SWITCHES

A. General-Duty Safety Switches: Provide surface-mounted, general-duty type, sheet steel enclosed safety switches, of the types, sizes, and electrical characteristics indicated; fusible type, rated for ampacity of circuit and system voltage as a minimum where noted on drawings. Switches shall be of pole configuration required for application with a solid neutral if needed; incorporating quick-make, quick-break type switches; so constructed that switch blades are visible in "OFF" position with door open. Equip with operating handle which is easily recognizable, and is padlockable in the "OFF" position; construct current carrying parts of positive pressure type reinforced fuse clips. Where noted on the contract documents, provide non-fuse disconnect switches of the same class construction listed above.

B. Provide rain-tight switches for outside locations and where noted on the drawings, or where required by code enforcing authorities.

C. Fuses: Provide fuses for safety switches, as noted on the drawings.

PART 3 - EXECUTION

3.01 INSTALLATION OF MOTOR CIRCUIT DISCONNECT SWITCHES

A. Install: Motor and circuit disconnect switches where indicated, complying with the manufacturer's written instructions, applicable requirements of NEC, NEMA and NECA's "Standard of Installation", and in accordance with recognized industry practices to ensure that products fulfill requirements.

B. Coordinate motor and circuit disconnect switch installation work with electrical raceway and cable work, as necessary for proper interface.

C. Install disconnect switches used with motor-driven appliances, and motors and controllers within sight of the controller position unless otherwise indicated.

D. Provide nameplates on disconnect switches. Nameplates shall be as required in specification.

E. Disconnects installed over the equipment nameplate shall be moved.

3.02 FIELD QUALITY CONTROL

A. Testing: Subsequent to completion of installation of electrical disconnect switches, energize circuits and demonstrate capability and compliance with requirements. Except as otherwise indicated, do not test switches by operating them under load. However, demonstrate switch operation through six opening/closing cycles with circuit unloaded. Open each switch enclosure for inspection of interior, mechanical and electrical connections, fuse installation, and for verification of type and rating of fuses installed. Correct deficiencies then retest to demonstrate compliance. Remove and replace defective units with new units and retest.

END OF SECTION

SECTION 262716 - CABINETS & ENCLOSURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Hinged cover enclosures.

B. Cabinets.

C. Terminal blocks.

D. Accessories.

1.02 RELATED SECTIONS

A. Section 26 05 29 - Supporting Devices.

B. Firestopping

1.03 REFERENCES

A. NECA Standard of Installation (National Electrical Contractors Association).

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

C. NEMA ICS 4 - Terminal Blocks for Industrial Control Equipment and Systems.

D. NFPA 70 - National Electrical Code.

1.04 SUBMITTALS FOR REVIEW – None Required.

1.05 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Hoffman.

B. Circle A-W.

C. Wiegmann.

D. Substitutions: Permitted.

2.02 HINGED COVER ENCLOSURES

A. Construction: NEMA 250, Type 1 or 3R steel enclosure.

B. Covers: Continuous hinge, held closed by flush latch operable by key.

C. Provide interior plywood panel for mounting terminal blocks and electrical components; finish with white enamel.

D. Enclosure Finish: Manufacturer's standard enamel.

2.03 CABINETS

A. Boxes: Galvanized steel.

B. Box Size: As indicated on drawings.

C. Backboard: Provide 3/4-inch thick plywood backboard for mounting terminal blocks. Paint matte white.

D. Fronts: Steel door with concealed hinge, and flush lock. Finish with gray baked enamel.

E. Knockouts: Pre-punched.

F. Provide metal barriers to form separate compartments wiring of different systems and voltages.

G. Provide accessory feet for free-standing equipment.

2.04 TERMINAL BLOCKS

A. Manufacturers:

1. Siemon.

2. Substitutions: Refer to Section 26 00 00.

B. Terminal Blocks: NEMA ICS 4.

C. Power Terminals: Unit construction type with closed back and tubular pressure screw connectors, rated 600 volts.

D. Signal and Control Terminals: Modular construction type, suitable for channel mounting, with tubular pressure screw connectors, rated 300 volts.

E. Provide ground bus terminal block, with each connector bonded to enclosure.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Quality Control: Manufacturer's instructions.

B. Install in accordance with NECA "Standard of Installation."

C. Install enclosures and boxes plumb. Anchor securely to wall and structural supports at each corner under the provisions of Section 16190.

D. Install cabinet fronts plumb.

3.02 CLEANING

A. Contract Closeout: Cleaning installed work.

B. Clean electrical parts to remove conductive and harmful materials.

C. Remove dirt and debris from enclosure.

D. Clean finishes and touch up damage.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 262726 – WIRING DEVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the General Conditions, Supplementary Conditions, and Division 1 Specification sections, apply to work of this section. .

1.02 SUMMARY

A. This Section includes the following:

1. Receptacles
2. Ground Fault Circuit Interrupter Receptacles
3. Plugs
4. Plug Connections
5. Snap Switches
6. Wall Plates

1.03 SUBMITTALS

A. Product data for each type of product specified.

B. All wiring devices shall be by the same manufacturer unless authorized by Architect. Unauthorized mixing of device brands is unacceptable.

C. Samples: The Contractor shall submit when requested a sample of the standard single pole switch and of the standard 15 and 20 Amp duplex convenience outlet as part of submittals. All wiring devices shall be by the same manufacturer unless authorized by Architect. Mixing of device brands is unacceptable.

1.04 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with provisions of the following codes.

1. NFPA 70 "National Electrical Code".

B. UL and NEMA Compliance: Provide wiring devices which are listed and labeled by UL and comply with applicable UL and NEMA standards.

1.05 SEQUENCE AND SCHEDULING

A. Schedule installation of finish plates after the surface upon which they are installed has received final finish.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufactures: Subject to compliance with requirements, provide products of one of the following or equal (for each type of wiring device):

1. General Electric Co.

2. Harvey Hubbell, Inc.

3. Pass and Seymour, Inc.

4. Bryant Electric Div.

5. Arrow Hart

6. Leviton

7. Lutron

8. Carlon

2.02 WIRING DEVICES

A. General: Provide wiring devices in types, characteristics, grades, colors, and electrical ratings for applications indicated which are UL listed and comply with NEMA WD1 and other applicable UL and NEMA standards. Where types and grades are not indicated, provide proper selection as determined by Contractor to fulfill wiring requirements, and comply with NEC and NEMA standards for wiring devices. Provide ivory color devices throughout. Provide stainless steel wall plates except as otherwise indicated. Verify color selection of devices with the Architect.

B. Receptacles:

1. General: Configuration and requirements for all connector or outlet receptacles shall be in accordance with the NEMA Publication WD1 and UL 498. Fire-resistant, non-absorptive, hot-welded, phenolic composition or equal bodies and based with metal plaster ears (integral with the supporting members). Single or duplex as shown or noted on the drawings. Double grip contacts for each prong. Convenience outlets shall be installed with grounding pin connection for plugs at top (outlets installed vertically). All outlets not installed with ground post connection point on top shall be repositioned to meet this requirement.

2. Grounding type: All receptacles shall be grounding type with a green colored hexagonal equipment ground screw and shall be connected to green circuit ground conductor. Grounding terminals of all receptacles shall be internally connected to the receptacle mounting yoke.

3. Duplex convenience outlets, rated 20 amps, 125 volts, 2 pole, 3 wire, NEMA 5-20R, specification grade, back or side wiring, shall be Hubbell #5362-I, Pass & Seymour #5362-I, General Electric GE 5362-2 or Bryant 5362I.

4. Weather proof outlets on exterior walls (except on the roof) shall be GFCI receptacles installed in recessed “Taymac Masque” or equal covered recessed receptacle box. Contractor shall install Taymac #72204 or equal with GFCI outlet. Taymac #72204 or equal consists of metal box, plastic extension ring and gasketed outlet bucket with cover. Verify color of cover prior to entering.

5. Weather proof outlets on roof for NEC 210.63 rule shall be GFCI outlet in FS cast metal box with Taymac #20510 or equal deep cover.

C. Ground Fault Interrupter Outlets:

1. The ground fault circuit interrupter (GFCI) receptacles, rated 15 amps, 125 volts, 2 pole, 3 wire, NEMA 5-15R, shall be UL listed (UL 498 and UL 943 Class A) and shall comply with ANSI C73.11. GFCI receptacles shall not have the "feed-through" feature to provide GFCI protection to receptacles connected downstream. The GFCI shall operate in the 4 - 6 milliamp range. The GFCI receptacles shall be Hubbell #GF-5262I, Pass & Seymour #1591-F-I, or Bryant #GFR52FTI. Receptacles shall be furnished with appropriate device wall coverplate.

D. Switches:

1. Unless otherwise specified, each snap switch (flush tumbler-toggle) shall be of the AC general use type fully rated 20 amperes minimum at 120/277 volts, conforming to minimum requirements of the latest revision of the Underwriters Laboratories, Inc., UL 20, NEMA Stds. Publ. No. WD1, and further requirements herein specified. Specification grade, heavy duty, single pole, 3-way, or 4-way of the maintained, momentary, or lock type as indicated on the drawings. Switches shall operate in any position and shall be fully enclosed cup type with entire body of phenolic, urea or melamine. Fiber, paper or similar insulating material shall not be used for body or cover. Silver or silver alloy contacts. AC 120/277 volt general use snap switches shall be capable of withstanding tests as outlined in NEMA publication WD1 and shall be as follows or an Architect approved equal, unless otherwise noted.

2. Single pole switches, rated 20A, 120-277 volts, shall be Hubbell #1221-I, General Electric #5951-2G, Pass & Seymour #20AC1-I or Bryant 4901I.

3. Single pole switch with pilot light shall be spec. grade red lighted handle, rated 20 amps, 120V, Hubbell #1221-PL, General Electric #SP121-8G, Pass & Seymour #20AC1-RPL or Bryant #4901 PLR 120.

4. Three-way switches, rated 20A, 120-277 volts, shall be Hubbell #1223-I, Bryant #4903I, Pass & Seymour #20AC3-I or General Electric #5953-2G.

5. Four-way switches, rated 20A, 120-277 volts, shall be Hubbell #1224-I, Bryant 4904I, Pass & Seymour #20AC4-I or General Electric #5954-2G.

6. Weatherproof switches shall include the type of snap switch indicated on the drawings and specified herein, enclosed with a Crouse-Hinds #DS 181 cover and gasket mounted in an FS cast box. Substitutions must be Architect approved. Flip top covers exposing switch handle to rain are not acceptable. Orientation of the cover must be vertical.

2.03 WIRING DEVICE ACCESSORIES

A. Wall plates: single and combination, of types, sizes, and with ganging and cutouts as indicated. Provide plates which mate and match with wiring devices to which attached. Provide metal screws for securing plates to devices with screw heads colored to match finish of plates. Conform to requirements of "Electrical Identification." Provide plates possessing the following additional construction features:

B. Material and Finish Recessed Box: 0.04 inch thick, type 302 satin finished stainless steel, non-residential areas.

C. Material and Finish Surface Box: steel plate, galvanized, non-residential areas.

D. Engraving: Wall plates located in finished areas which would require identification shall be engraved stainless steel plates. All lettering shall be 1/8" minimum in height, nine characters per inch and filled with black paint. Identification wording/lettering shall be as noted on the drawings and shall be centered on coverplate.

E. Plates for special purpose outlets shall be of a design suitable for the particular application.

F. Wall plates covering flush boxes in CMU walls shall have oversize plates.

PART 3 - EXECUTION

3.01 INSPECTION

A. Wiring device locations shown are approximate. Contractor shall adjust lateral locations shown up to 18” to accommodate final room layouts. The outlet locations shall be modified from those shown on the plans to accommodate changes in door swings or to clear other interferences that may arise from job construction details as well as modification within room spaces. The Contractor shall check these conditions throughout the entire job and shall notify the Architect of discrepancies as they may occur before proceeding with the installation of the work to verify the modifications, if any.

3.02 INSTALLATION OF WIRING DEVICES AND ACCESSORIES

A. Install wiring devices and accessories as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and in accordance with recognized industry practices to fulfill project requirements.

B. Coordinate with other Work, including painting, electrical boxes and wiring installations, as necessary to interface installation of wiring devices with other Work. Install wiring devices only in electrical boxes, which are clean; free from building materials, dirt and debris.

C. Install galvanized steel wallplates in unfinished spaces.

D. Install wiring devices after wiring work is completed. Switches shall be mounted 44" and convenience outlets 18" minimum, center of box above the finished floor level except as otherwise specified on the drawings. Align devices and plates horizontally and vertically.

E. Wall boxes shall be set in advance of the wall construction, shall be blocked in place and secured. All wall boxes shall be set flush with the finished building construction. Contractor shall vacuum clean all wiring device boxes.

F. Coordinate with other work, including painting, electrical box and wiring work, as necessary to interface installation of wiring devices with other work.

G. Delay installation of wall plates until after painting work is completed.

H. The Contractor shall be responsible for coordinating with other trades the actual installation of his outlet boxes in walls. The wall building material (cinder block, brick, sheetrock or whatever) shall provide an even trim around outlet boxes not exceeding a 1/4" gap. The device coverplate should be able to cover up wall openings around outlet boxes. Wherever an outlet box installation fails to comply with the above listed condition, the Contractor shall arrange to have the problem corrected. Caulking, spackling material or any other sealer to be used shall be kept out of the outlet box area.

I. Wiring device yokes shall be installed in physical contact with the plaster ring. Spiral wound bare wire supports to act as spacers between plaster extension ring/box and device yokes are not acceptable. Where condition occurs, the plaster ring/box shall be replaced as required to provide the proper contact.

J. Device coverplates for each and every device shall be furnished and installed by this contractor.

K. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for wiring devices. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standard 486A. Use properly scaled torque indicating hand tool.

3.03 PROTECTION OF WALL PLATES AND RECEPTACLES

A. Upon installation of wall plates and receptacles, advise the Contractor regarding proper and cautious use of convenience outlets. At time of Substantial Completion, replace those items which have been damaged, including those burned and scorched by faulty plugs.

3.04 GROUNDING

A. Provide electrically continuous, tight grounding connections for wiring devices, unless otherwise noted.

3.05 FIELD QUALITY CONTROL

A. Testing: Prior to energizing circuits, test wiring for electrical continuity, and for short-circuits. Ensure proper polarity of connections is maintained. Subsequent to energizing, test wiring devices and demonstrate compliance with requirements, operating each operable device at least six times.

B. Test ground fault interruptor operation with both local and remote fault simulations in accordance with manufacturer recommendations.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 265100 - LIGHTING

PART 1 – GENERAL

1.01 SUMMARY:

A. Section includes the following types of LED luminaires:

1. Downlight.
2. Recessed linear.
3. Surface mount, linear.
4. Suspended, linear.
5. Materials.
6. Finishes.
7. Luminaire support.

1.02 DEFINITIONS:

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.03 ACTION SUBMITTALS:

A. Product Data: For each type of product, arranged by designation.

B. Shop Drawings: For nonstandard or custom luminaires.

C. Include plans, elevations, sections, and mounting and attachment details. Include details of luminaire assemblies. Indicate dimensions, weights, loads, and required clearances, method of field assembly, components, and location and size of each field connection. Include diagrams for power, signal, and control wiring.

D. Sustainable Design Submittals:

E. Product Schedule: For luminaires and lamps.

1.04 INFORMATIONAL SUBMITTALS:

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale and coordinated with each other, using input from installers of the items involved:

B. Seismic Qualification Certificates: For luminaires, accessories, and components, from manufacturer.

C. Product Certificates: For each type of luminaire.

D. Sample warranty.

1.05 CLOSEOUT SUBMITTALS:

A. Operation and maintenance data.

1.06 WARRANTY:

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 LUMINAIRE REQUIREMENTS:

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Standards:

1. ENERGY STAR certified.
2. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.
3. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.
4. UL Listing: Listed for damp location.
5. Recessed luminaires shall comply with NEMA LE 4.

C. CRI of 80. CCT of 3000 K.

D. Rated lamp life of 54,000 hours to L70.

E. Lamps dimmable from 100 percent to 0 percent of maximum light output.

F. Internal driver.

G. Nominal Operating Voltage: 120 V ac.

H. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

I. Housings:

1. Extruded-aluminum housing and heat sink.
2. Powder-coat finish.

2.02 DOWNLIGHT:

A. Minimum 1,000 lumens. Minimum allowable efficacy of 80 lumens per watt.

B. Universal mounting bracket.

C. Integral junction box with conduit fittings.

D. Optics:

1. Fixed lens.
2. Medium light distribution.

E. : Minimum 4300 lumens. Minimum allowable efficacy of lumens per watt.

F. Integral junction box with conduit fittings.

2.03 SURFACE MOUNT, LINEAR:

A. Minimum 3,000 lumens. Minimum allowable efficacy of 80, 96 lumens per watt.

B. Integral junction box with conduit fittings.

2.04 MATERIALS:

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging

4. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit re lamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during re lamping and when secured in operating position.

B. Diffusers, and Globes:

1. Soft, opal diffuser
2. Acrylic: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

C. Housings:

1. Extruded-aluminum housing and heat sink.
2. Powder-coat finish.

2.05 METAL FINISHES:

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.06 LUMINAIRE SUPPORT:

A. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

B. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage

C. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

D. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports: Sized and rated for luminaire weight.

E. Flush-Mounted Luminaire Support: Secured to outlet box.

F. Wall-Mounted Luminaire Support:

G. Do not attach luminaires directly to gypsum board.

H. Ceiling-Mounted Luminaire Support:

I. Ceiling mount with two 5/32-inch- diameter aircraft cable supports adjustable to 120 inches in length.

J. Ceiling mount with pendant mount with 5/32-inch- diameter aircraft cable supports adjustable to 120 inches in length.

K. Ceiling mounts with hook mount.

L. Ceiling-Grid-Mounted Luminaires:

M. Secure to any required outlet box.

N. Secure luminaire using approved fasteners in a minimum of four locations, spaced near corners of luminaire.

O. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 16075 "Identification for Electrical Systems."

3.02 FIELD QUALITY CONTROL:

A. Perform the following tests and inspections:

B. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.

C. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify trans fer from normal power to battery power and retransfer to normal.

D. Luminaire will be considered defective if it does not pass operation tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 265100

SECTION 31 1100 - CLEARING AND GRUBBING

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section specifies clearing, grubbing, removing, and disposing of all vegetation and debris within the clearing limits except objects designated to remain. Work includes the preserving from injury or defacement all objects designated to remain

1.02 CLEARING LIMITS

A. Site: Clearing limits are to be to minimum extend possible to accomplish site grading requirements as shown on the plans.

B. Utilities: Clearing limits are within a 3-foot strip contiguous to utility centerline unless otherwise staked on the ground.

PART 2 PRODUCTS

No products are required for this Section

PART 3 EXECUTION

3.01 CLEARING AND GRUBBING

A. Clear and grub all surface objects, trees, tree stumps, roots and other objects in areas where earthwork will occur.

B. Vegetation outside construction areas where no excavation will occur shall be protected against damage.

3.02 DEBRIS DISPOSAL

A. Remove debris off the project site and legally dispose.

END OF SECTION

SECTION 31 2300 - EARTHWORK

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide all site preparation, excavating, filling, compacting, and related items of work required to complete the earthwork as indicated on the drawings and as specified herein.

B. Provide all excavation and backfill as required for the installation of all buried heating, plumbing and electrical work.

C. Remove from site and legally dispose of all excavated materials that are not suitable for reuse as “common fill” or “topsoil” for area grading. Disposal site as selected by Contractor.

1.02 QUALITY ASSURANCE

A. The following specifications and standards (including all applicable addenda and amendments, etc.,) form a part of this specification. Latest editions of each specification shall be applicable.
   1. American Association of State Highway & Transportation Officials: T-147 Materials for aggregate and soil-aggregate sub-base, base and surface courses
   2. American Society for Testing and Materials Standards:
      a. C-117 - Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing
      b. C-136 - Sieve or Screen Analysis of Fine and Coarse Aggregates
      c. D-2167 - Density of soil in place by the rubber balloon method.
      d. D-2922 - Density of soil and soil aggregate in place by the nuclear methods (shallow depths)
      e. D-1557 - Moisture density relations of soils and soil aggregate mixtures using 10# Rammer and 18 inch drop.
   3. International Building Code
   4. OSHA Requirements
   5. New Mexico Standard Specifications for Public Works Construction

1.03 JOB CONDITIONS

A. The Contractor should visit the site and acquaint himself with site conditions. Prior to bidding, the Contractor may make his own subsurface investigation to satisfy himself with site and subsurface conditions.

B. Carefully maintain all benchmarks, monuments and other reference points; if disturbed or destroyed, replace.

C. Observe rules and regulations governing the respective utilities in executing all work under this heading.

D. Inspect site and ascertain the existence or lack of utilities prior to commencing excavation work. Damage to utilities shown on the drawings, or those located by utility companies or local authorities for the Contractor, shall be repaired or replaced at Contractor’s expense.

E. Inactive and abandoned utilities encountered in excavating and grading shall be removed, plugged or capped as directed by the Owner’s Representative. If there are not specific requirements, plug or cap such utility lines at least 3-feet outside of new building walls or as required by local regulations.

F. Do not allow or cause any of the work performed or installed to be covered up or enclosed prior to all required inspections, tests, and approvals. Should any of the work be enclosed or covered up before it has been approved, uncover all such work at no additional cost to the Owner.

G. After the work has been completely inspected, tested and approved, make all repairs necessary to restore the work of other trades to the condition in which it was found at the time of uncovering, all at no additional cost to the Owner.

PART 2 PRODUCTS

2.01 MATERIALS

A. Structural Fill (under site improvements such as curbs, sidewalk, asphalt, concrete pavement): Non frost susceptible, clean, free draining, well graded broken stone, sand, gravel or other inorganic soil materials meeting the following gradation after compaction:

1. Size % Passing
2. 2.0" 100
3. ¾" 60-100
4. No.4 30-80
5. No. 10 20-60
6. No. 200 Less than 45 (based on ¾" fraction)
7. P.I. less than or equal to 12

B. Common Fill (general site areas): Any sandy gravel, sand, sandy-silt, silt or other common soil materials, containing no debris or organic contamination.

2.02 BORROW SOURCE

A. Use materials from excavation where qualified. Additional materials to come from source of Contractor's choosing. All borrow materials shall comply with the specifications listed above for the specific use of the borrow material.

PART 3 EXECUTION

3.01 EXCAVATION

A. Depth and extent of excavation shall be in conformance with contract drawings and specifications.

1. Depth sufficient for placement of structural fill, curbs, sidewalks, paved areas, grade beams, pile caps, foundations and slabs at elevations shown on drawings.
2. Unauthorized over-excavation beyond limits set by drawings and/or specifications shall be replaced with structural fill materials as specified elsewhere in this section. Backfill and compaction of unauthorized over-excavation shall be at Contractor's expense.
3. No excavation is authorized below indicated depths unless so required in writing by the Engineer to obtain suitable bearing materials or to remove objectionable debris.
4. Contractor is responsible for excavating all types of material encountered in excavations.
5. Contractor is responsible for establishing excavation backslopes and protecting banks from erosion.

B. Dewatering:

1. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.
2. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
3. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

3.02 EXCAVATION FOR BURIED UTILITIES, OR SEWER

A. See site, civil, plumbing, mechanical and electrical drawings and specifications for extent of work. Provide all required excavation and backfill in conjunction with buried utilities, sewers or storm drainage as specified in Trenching, Backfilling and Compaction specification.

3.03 AREA GRADING

A. Areas indicated for general area grading or to be topsoiled shall be graded and filled in accordance with the drawings and these specifications.

B. Slope from elevation of new improvements to meet existing grade at slopes as indicated on the drawings. Where slope is not indicated, maximum slope shall be 3 horizontal to 1 vertical (3:1).

3.04 PLACEMENT OF FILL MATERIALS

A. Obtain geotechnical engineer's approval of excavations prior to placement of fills.

B. Structural Fill:
1. Placement thicknesses shall be as detailed in the plans.
2. No extra payment for structural fill in excess of limits shown on drawings or as specified herein without written approval of the Engineer.
3. Maximum loose depth of each lift shall be eight (8) inches in areas to be compacted by machine.
4. Lifts shall be placed on level planes. Step sides and bottom of excavations if necessary to accomplish level fills.
5. Each lift of backfill material to be carried level to all sides of excavated area. No partial fills permitted.
6. Edges of structural fills shall be compacted and brought up at a maximum slope of 2:1.
7. Avoid damage to foundation walls.
8. Tamp by hand tampers only unless walls are equally backfilled both sides as a simultaneous operation, or unless structural floor system, which serves to brace wall is in place and properly anchored.
9. Fill in horizontal layers shall not exceed 6 inches loose depth where hand tampers or hand operated vibratory compactors are used.
10. Backfill shall be placed at same vertical rate and at same time on both sides of all foundations.
11. Compact each lift to not less than 95% maximum dry density before placing next lift.
12. Do not place structural fill on frozen ground.

C. Common Fill
1. Use common fill for areas outside of building and paved parking areas.
2. Maximum compacted lift thickness 8".
3. Top 18" of fill in areas to receive topsoil shall be compacted to minimum 85% maximum density.
4. Backfill in areas adjacent to foundation walls shall be compacted to a minimum of 90% maximum density.
5. Adjust moisture content as required to accomplish proper compaction and to provide dust control when required by the Engineer.

3.05 COMPACTION OF SUBGRADE UNDER STRUCTURAL FILL

A. Compact subgrade so that top 6" is at not less than 95% of maximum dry density.

B. Subgrade shall have no irregularities varying more than 0.1 foot above or below grade after compaction. Soft or yielding spots shall be replaced and re-compacted.

C. Adjust moisture content as required to accomplish proper compaction and to provide dust control when required by the Engineer.

3.06 COMPACTION TESTING REQUIREMENTS

A. Asphalt Pavement areas: 3 different locations per lift shall have compaction verified by one of the methods as set forth in section 3.07 of this specification.

B. Concrete Pavement areas: 3 different locations per lift shall have compaction verified by one of the methods as set forth in section 3.07 of this specification.

C. Concrete Sidewalk areas: 3 different locations per lift shall have compaction verified by one of the methods as set forth in section 3.07 of this specification.

D. Utility trenches: 2 different locations per lift shall have compaction verified by one of the methods as set forth in section 3.07 of this specification

3.07 COMPACTED FILL TESTING

A. Performed by an approved testing laboratory and paid for by Contractor.

B. Compaction tests shall not be taken until Contractor states that compaction has been obtained.

C. Retesting of areas that fail under first tests shall be made by an approved testing laboratory at Contractors' expense.

D. Test methods:
   1. Maximum dry density determination shall conform with ASTM test designation D-1557.
   2. Field density testing shall conform with ASTM test designation D-1556 (sand cone method), ASTM D-2922 (nuclear gauge method) or by Rainhart Volumeter. (ASTM D-2167).

3.08 GRADING TOLERANCES

A. Rough grade and finish grade the entire site to the elevations indicated on the drawings or otherwise required for proper drainage and completion of the work. Grade to at least the following tolerances:
   1. Rough grade: Building and parking areas - Plus or minus 0.25 foot
   2. Finish grade: (For paving and related site work) Building and parking area - Plus or minus .05 foot

3.09 DISPOSAL OF WASTE AND FINAL CLEAN UP

A. Waste:
   1. Includes excess excavation not suitable for fill.
   2. Includes unusable, surplus or damaged materials.

B. Cleanup:
   1. Leave site in neat and orderly condition with all refuse removed and grounds raked within project limits, storage areas and other areas disturbed by Contractor during construction.

END OF SECTION

SECTION 31 3520 – EROSION CONTROL GEOTEXTILE

PART 1 GENERAL

1.01 GENERAL

A. Place erosion control geotextiles between erosion control structures (riprap, river rock, and gabions) and the in-situ soil to prevent soil loss resulting in excessive scour and to mitigate hydraulic uplift pressures that may cause instability of an erosion control structure.

PART 2 PRODUCTS

2.01 ACCEPTABLE MATERIALS

A. Contractor shall not use woven slit film geotextiles or geotextiles made from yarns of a flat tape-like character.

B. Basis of Design:

J-Drain Non-woven Geotextiles available from JDR Enterprises
MX-225 Non-Woven Geo-Textile (Filter Fabric), available from Maccaferri, Inc.

C. Geotextile rolls shall be furnished with suitable wrapping for protection against moisture, and extended ultra-violet exposure prior to placement. Each roll shall be labeled to provide product identification sufficient for inventory and quality control purposes. Rolls shall be stored in a manner, which protects them from the elements. If stored outdoors, they shall be elevated and protected with a waterproof cover.

PART 3 EXECUTION

3.01 INSTALLATION

A. The geotextile shall be placed and anchored on a smooth, graded surface. In this project the geotextile will be placed on the top of an in-situ clay liner in the gravel marshes created by compaction of native soil. Prior to placement of geotextile, the subgrade is to be inspected and approved by the Engineer. The ground surface shall be smooth and free of rocks and organic material. Any areas found to be unacceptable are to be corrected.

B. Exposure of geotextiles to the elements between lay down and cover shall be a maximum of 14 days to minimize damage potential.

C. The geotextile shall be placed in such a manner that placement of the overlying rock will not excessively stretch or tear the fabric. Sand bags shall be used to prevent movement by wind.

D. Successive geotextile sheets shall be placed from down-slope to upslope. The upslope sheet shall be overlapped over the down-slope sheet. Anchoring of the terminal ends of the geotextile shall be accomplished through the use of anchor trenches as shown on the Drawings.

E. The geotextile shall be wrapped around any penetrating pipes and secured to the pipe using stainless steel hose clamps or other technique approved by the Engineer.

F. A minimum of 12" overlap is required where two sections of fabric join together. The overlaps shall be pinned through both thicknesses. Pins shall be 3/16-inch in diameter and 12-inches in length, minimum, pointed at one end and bent at the other end or fitted with a washer to provide a horizontal width of at least 1-inch. Pins should be spaced at a distance of 3-feet along overlaps.

G. Once the fabric is in place and secured, it may be covered with the specified riprap.

END OF SECTION

SECTION 31 3700 - RIPRAP

PART 1 GENERAL

1.01 DESCRIPTION

A. This work shall consist of furnishing and placing erosion resistant and protective materials in the areas of the inlets and outlets of drainage pipe structures and on various slopes as indicated on the drawings.

PART 2 PRODUCTS

2.01 ROCK

A. Rock used for riprap shall be hard angular rock and should be obtained from local series if possible. Limestone is acceptable.

B. Neither the breadth nor thickness of any piece of riprap shall be less than one-third its length. Rock shall be free from overburden, spoil and organic material.

C. Rock sizes are specified on the Drawings.

PART 3 EXECUTION

3.01 GENERAL

A. The riprap shall be processed into the specified size ranges.

3.02 PLACEMENT

A. Soil surfaces at all riprap areas shall be dressed to a smooth surface after compaction to specified density. The surfaces shall be inspected and approved prior to placing riprap.

B. The riprap shall be placed to a maximum of one-foot thickness in a manner, which will produce a reasonably well-graded mass with a minimum amount of voids. Larger rock should be evenly distributed. Hand placing of individual rock will be necessary to obtain the specified results.

C. The rocks shall be embedded 4-6" into the soil. The largest rocks should be placed on top of a foundation of smaller rocks.

END OF SECTION

SECTION 32 1116 – PARKING LOT PAVING

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, tools and equipment to perform asphalt pavement operations for areas as indicated on the drawings and as specified herein.

1.02 QUALITY ASSURANCE

A. Comply with pertinent provisions of the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction, 2014 Edition, Sections 303 and 423 (Non-QLA), as modified and included in this specification. The specifications are available at www.dot.state.nm.us

B. This contract is a Lump Sum Contract and the "Basis of Payment" and "Method of Measurement" references in the NMDOT Standard Specifications do not apply. Also, statements in the NMDOT Standard Specifications regarding "the Department" conducting quality assurance sampling and testing do not apply. The Contractor will arrange and pay for all sampling and testing. Substitute the word Owner or Owner's Representative for Department. Substitute the word Project Engineer for Project Manager.

1.03 SUBMITTALS

A. Certificate for manufacturer of asphalt materials, properly attested, stating that the asphalt materials meet the project specifications.

B. Proposed job mix formula to be furnished by the Contractor and approved by the Engineer at least 10 days before manufacture of bituminous mixture begins.

C. Submit samples and gradation (min, three each) from base course aggregate stockpile for Engineer's review.

PART 2 PRODUCTS

2.01 MATERIALS

A. Hot Mix Asphalt – per NMDOT referenced standard, Superpave SP-IV

B. Base Course - per NMDOT referenced Standard specifications.

C. Pavement Aggregate: Per NMDOT referenced Standard specifications

D. Filler: Per NMDOT referenced Standard specifications, Section 402

E. Asphalt Binder: Per NMDOT referenced Standard specifications, Section 402, PG 64-22.

F. Tack Coat: Per NMODT referenced Standard specifications, Section 407.

G. Prime Coat: Per NMDOT referenced Standard specifications, Section 408.

PART 3 EXECUTION

3.01 INSTALLATION

A. As per NMDOT referenced Standards.

B. Patch areas in asphalt pavement where core samples are taken to the satisfaction of the Engineer.

3.02 INSPECTION AND TESTS

A. Tests by Contractor, in accordance with NMDOT requirements by an independent testing laboratory. All sampling and testing for the Acceptance Testing shall be performed by an individual certified by the NMDOT State Materials Bureau's Technical Training and Certification Program (TTCP) or said testing can be performed by a registered Professional Engineer in the State of New Mexico who is qualified and knowledgeable in the field of materials sampling and testing and has a minimum of 10 years of experience in materials sampling and testing. The location of tests will be determined by the Engineer. Tests shall include buy not be limited to the following:

1. Subgrade Prep
   a. Conduct test for each 2,500 sq. yds. of in-place material, but in no case not less than one daily for each lift.
2. Base Course
   a. Test density of compacted aggregate base course in accordance with NMSHTD Section 304.
   b. Conduct test for each 2,500 sq. yds. of in-place material, but in no case not less than one daily for each lift.
   c. 1 sieve and fractured faces per 5000 sq. yds. per lift
3. Asphalt Pavement
   a. Quality Assurance Acceptance Testing requires:
      1. 2 gradations, 2 binder ignitions, and 3 briquettes per 3000 sq. yds. placed per lift.
      2. 2 cores per 3000 sq. yds. per lift is required for pavement densities; however a minimum of 3 cores per project is required for projects with less than 3000 sq. yds.
   b. Quality Control requires:
      1. At least 6 nuclear densities per 1000 ft.
   c. Evaluation of Materials for Acceptance requires:
      1. A sub-lot consists of 3000 sq. yds. accumulatively placed per lift and each lot size is a set of 2 accumulatively placed sub-lots.
4. Test the paved areas for proper drainage by flooding with water in such quantity as required to demonstrate the correct shaping and slope of the paving.
5. Notify the Engineer at least 72 hours in advance so that he may observe the above test.

3.03 ADJUST AND CLEAN

A. Any areas of standing water discovered during the drainage tests shall be brought to proper grade to provide complete runoff by cutting and patching. Skin patching will not be allowed.

B. Cleaning: After completion of paving operation, clean surface of excess of spilled asphalt materials to the satisfaction of the Engineer.

END OF SECTION

SECTION 32 1313 - PORTLAND CEMENT CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes exterior cement concrete pavement for parking and drive areas.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For concrete pavement mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

C. Plain Steel Wire: ASTM A 82.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement: ASTM C 150, Contractor may choose to supplement mix with the following:

a. Fly Ash: ASTM C 618, Class C.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, Coarse aggregate, uniformly graded. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/C 494M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.3 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches long.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:

1. Compressive Strength (28 Days): 4000 psi.
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45
3. Slump Limit: 4 inches plus or minus 1 inch
4. Air Content: 4%-6%.

B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. Yd.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M.

2.8 BASE COURSE

A. Comply with pertinent provisions of the New Mexico Department of transportation (NMDOT) Standard specifications for Highway and Bridge Construction, Current Edition, Section 304 Base Course.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline (perpendicular to normal vehicle traffic)unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed pavement surfaces with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these methods.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: ¼ inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-foot long, unleveled straightedge not to exceed 1/4 inch.
4. Joint Spacing: 3 inches.
5. Contraction Joint Depth: Plus 1/4 inch, no minus.
6. Joint Width: Plus 1/8 inch, no minus.

3.9 PAVEMENT MARKING

A. Allow concrete pavement to cure for 28 days and be dry before starting pavement marking.

B. Sweep and clean surface to eliminate loose material and dust.

3.10 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 32 1393 - SITE WORK CONCRETE

PART 1 GENERAL

1.01 SUMMARY

A. Work under this Section includes furnishing, placing, and finishing cast-in-place concrete flat-work, including sidewalk, curb and gutter, and miscellaneous accessories for site work concrete as indicated on the drawings.

1.02 REFERENCES

A. Follow specifications of the American Concrete Institute (ACI)
   1. ACI 304 “Recommended Practice for Measuring, Mixing and placing Concrete”
   2. ACI 306 “Recommended Practice for Cold Weather Concreting”

1.03 SUBMITTALS

A. Submit all test results as required by the Contract.

1.04 PROJECT/SITE CONDITIONS

A. Check grades and compaction before starting work. Correct discrepancies or deficiencies in structural fill prior to placement of forms.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

   1. Portland Cement: ASTM C 150, Contractor may choose to supplement mix with the following:

      a. Fly Ash: ASTM C 618, Type C or Type F. Limit use fo fly ash to not exceed 20% of cement content by weight.
      b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, Coarse aggregate, uniformly graded. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/C 494M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

F. Concrete 28-day strength to be a minimum of 2,500 psi.

G. Steel Reinforcement:
   1. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
   2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
   3. Plain Steel Wire: ASTM A 82.
   4. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

H. Expansion joint material, pre-molded filler strips. ASTM D 994 or ASTM 1751. Joint sealer Fed. Spec. TT-S-230 or TT-S-227 (E).

I. Concrete curing materials to be one of the following
   1. Liquid membrane-forming curing compound: Liquid type membrane-forming curing compound complying with ASTM C 309, Type 1, clear without dyes. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. ft./gal.
   2. Impervious sheeting. Polyethylene, ASTM c 171, 4-mil, black.

J. Air entrainment 4%-6%, ASTM C 260.

K. Fiber Reinforcement: Synthetic Fiber: Monofilament polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches long.

PART 3 EXECUTION

3.01 INSTALLATION

A. Forms clean, straight and true, braced to prevent deformation.

B. Place no concrete prior to Owner's Representative approval of formwork, reinforcement and embedded items.

C. Bed course material shall be placed under curbs and sidewalks to depth as specified on plans. Bed Course material shall consist of cinders, sand, gravel, crushed stone, or other granular aggregate with 100% passing the ½" sieve and not more than 12% passing the No. 200 sieve. Base course may be substituted. Compact bed course to 95% Modified Proctor maximum density.

D. Provide batch certificates for each load of ready mix delivered to the job site certifying that batch conforms to approved proportions.

E. Sidewalk forms shall not have sharp breaks at points of change in grade. Bend forms to provide curved transitions with radius of curvature of sufficient length to present a pleasing appearance.

F. Do not remove forms by prying on green concrete.

3.02 ADMIXTURES

A. Admixtures used only on written approval of Engineer.

B. Admixtures used in strict accordance with manufacturer's written instruction.

C. No surface retarders to be used.

D. Air entrainment admixture to produce consistent mixes and a maximum of 6 percent air content.

3.03 FIELD QUALITY CONTROL

A. The testing frequency for concrete placed on this project is as follows:

   1. The first concrete mix truckload will be tested for slump, air content and temperature. If the first test is within specification limits, then cylinders will be taken and tests and cylinders provided for every 50 cubic yards thereafter.

   2. If the first concrete mix truckload is not within specification limits, eery truckload thereafter will be tested until acceptable concrete is supplied. Then, tests and cylinders will be provided for every 50 cubic yards placed each day.

   3. If small placements are performed daily, then tests and cylinders will be taken for every 20 cubic yards accumulated.

3.04 FINISHING

A. General
   1. Work includes pavement slabs, curbs, and sidewalks as required by drawings.
   2. Finish to true, even lines and leave surfaces free from defects.

3. Compact slab material with floats or tampers to settle large aggregate.
   a. Finish with steel trowel.
   b. Broom lightly with a soft bristled broom to achieve a rough finish.
4. Metal handrail posts - finish concrete flush.
5. Joints, edges. Finish with jointing and edging tools to true lines.
6. See details for contraction and expansion joint requirements.
7. Spacing of scoring lines (where not detailed) to equal width of sidewalks or slabs.
8. Remove curb forms and finish as specified herein.
9. Maximum spacing of expansion joints in curbs and sidewalks to be sixty (60) feet.

B. Screed Finish
1. Screed and consolidate slab with power driven vibratory screen to true plane surface.
2. Remove screeds and fill voids with concrete.

C. Float Finish
1. Screed Finish, then:
2. Commence floating when concrete is still green, but sufficiently hardened to bear finisher's weight without deep imprint.
3. Wood float to true even textured surface applying sufficient pressure to cover all coarse aggregate and bring moisture to the surface.

D. Single Trowel Finish
1. Float Finish, then:
2. After surface moisture has disappeared, steel trowel to smooth, even, impervious finish, free from trowel marks.

E. Broomed Finish
1. Float finish.
2. After surface moisture has disappeared, steel trowel to smooth, even, impervious finish, free from trowel marks.
3. Broom with stiff bristle broom across direction of principal traffic.
4. Provide broomed finish for all exterior concrete work unless noted otherwise on the drawings.

3.05 CURING

A. General
1. Protect all concrete from loss of moisture, temperature changes, mechanical injury, or injury from rain or flowing water for 7 days following placing (3 days for Type III cement).
2. Maintain moist condition throughout curing period.
3. Commence curing as soon as finishing is complete and moisture has disappeared from surface.
4. No traffic on finished slabs for 48-hours after pouring. Use planks or runways for hauling over slabs during curing period.

B. Curing. Unless specific methods are specified otherwise, any of the following curing methods may be used:
1. Curing Compound. Apply per manufacturers' written instructions.
2. Impervious Sheet Curing. Thoroughly wet surfaces with a fine water spray. Completely cover surfaces with waterproof plastic. Lap all edges 4-inches or more and seal with adhesive or tape. Weight to prevent displacement. Repair or replace when damaged.

3.06 CLEANING

A. Remove spilled concrete prior to its final set from all surfaces including reinforcing steel to be embedded in a future pour.

B. Remove all forms and materials and leave project site clear of all debris.

END OF SECTION

SECTION 32 1723 - PAVEMENT MARKING

PART 1 GENERAL

1.01 DESCRIPTION

A. Work included: Provide pavement marking in the types and arrangements shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

PART 2 PRODUCTS

2.01 PAVEMENT MARKING PAINT

A. Provide paint specifically formulated for use as pavement marking in automobile traffic areas.

2.02 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 APPLICATION

A. Using proper masking, stencils and application equipment recommended for the purpose by the manufacturer of the approved paint, apply the approved paint in strict accordance with its manufacturer's recommendations.

3.03 PROTECTION

A. Provide traffic cones, barricades, and other devices needed to protect the paint until it is sufficiently dry to withstand traffic.

3.04 CLEANUP

A. When paint is thoroughly dry, visually inspect the entire application, and:
   1. Touchup as required to provide clean, straight lines and surfaces throughout.
   2. Using a permanently opaque paint identical in color to the surface on which the paint was applied, block out and eliminate all traces of splashed, tracked, and/or spilled pavement marking paint from the background surfaces.

END OF SECTION