

PROJECT MANUAL FOR:

**KENDALL COUNTY
PROBATION OFFICE
BUILDOUT**

807 West John Street
Yorkville, IL 60560

OWNER:

KENDALL COUNTY
111 W. FOX STREET
YORKVILLE, ILLINOIS 60560

PREPARED BY:

CORDOGAN CLARK & ASSOCIATES, INC.
PROJECT # 221103

FEBRUARY 13, 2024
BID SET

TABLE OF CONTENTS

SECTION NO. SECTION TITLE

DIVISION 00 PROCUREMENT AND CONTRACTING REQUIREMENTS

000000	COVER
001000	TABLE OF CONTENTS
001115	LIST OF DRAWING SHEETS
002000	NOTICE TO BIDDERS
003000	INSTRUCTIONS TO BIDDERS
003113	PRELIMINARY SCHEDULES
003500	REQUIREMENTS FOR QUALIFICATION
004000	FORM OF PROPOSAL
005000	SUPPLEMENTARY GENERAL CONDITIONS

DIVISION 01 GENERAL REQUIREMENTS

011000	WORK SCOPE FOR ALL CONTRACTORS
011001	BP #01 GENERAL TRADES SCOPE SHEET
011002	BP #02 ELECTRICAL SCOPE SHEET
012200	UNIT PRICES
012600	CONTRACT MODIFICATION PROCEDURES
012900	PAYMENT PROCEDURES
013100	PROJECT MANAGEMENT AND COORDINATION
013200	CONSTRUCTION PROGRESS DOCUMENTATION
013300	SUBMITTAL PROCEDURES
014000	QUALITY REQUIREMENTS
015000	TEMPORARY FACILITIES AND CONTROLS
016000	PRODUCT REQUIREMENTS
017300	EXECUTION
017329	CUTTING AND PATCHING
017419	CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
017700	CLOSEOUT PROCEDURES
017823	OPERATION AND MAINTENANCE DATA
017839	PROJECT RECORD DOCUMENTS
017900	DEMONSTRATION & TRAINING

DIVISION 02 EXISTING CONDITIONS

024119	SELECTIVE DEMOLITION
--------	----------------------

DIVISION 06 WOOD, PLASTICS, COMPOSITES

061000	ROUGH CARPENTRY
--------	-----------------

064116	PLASTIC LAMINATE FACED ARCHITECTURAL CABINETS
DIVISION 07	THERMAL AND MOISTURE PROTECTION
072100	THERMAL INSULATION
078413	PENETRATION FIRESTOPPING
078446	FIRE RESISTIVE JOINT SYSTEMS
079219	ACOUSTICAL JOINT SEALANTS
DIVISION 08	OPENINGS
081113	HOLLOW METAL DOORS AND FRAMES
081416	FLUSH WOOD DOORS
087100	DOOR HARDWARE
088000	GLAZING
DIVISION 09	FINISHES
092216	NON-STRUCTURAL METAL FRAMING
092900	GYPSUM BOARD
095123	ACOUSTICAL TILE CEILINGS
096513	RESILIENT BASE & ACCESSORIES
096813	TILE CARPETING
099123	INTERIOR PAINTING
DIVISION 12	FURNISHINGS
123623.13	PLASTIC-LAMINATE-CLAD COUNTERTOPS

KENDALL COUNTY PROBATION OFFICE
807 WEST JOHN STREET
YORKVILLE, ILLINOIS
CCA PROJECT NUMBER: 221103
BID SET

CORDOGAN CLARK & ASSOCIATES, INC.
960 RIDGEWAY AVENUE
AURORA, ILLINOIS
630-896-4678
FEBRUARY 2024

DOCUMENT 001115 - LIST OF DRAWING SHEETS

1.1 LIST OF DRAWINGS

- A. Drawings: Drawings consist of the Contract Drawings and other drawings listed on the Table of Contents page of the separately bound drawing set titled Kendall County Probation Office Buildout, dated November 15, 2023, as modified by subsequent Addenda and Contract modifications.
- B. List of Drawings: Drawings consist of the following Contract Drawings and other drawings of type indicated:

General

- T1.0 COVER SHEET
- T1.1 GENERAL NOTES, ABBREVIATIONS & SYMBOLS LEGEND
- T2.1 SAFETY REFERENCE PLAN

Architectural

- A2.1 FLOOR PLAN PROBATION, FINISH AND POWER NOTES
- A2.2 FLOOR PLAN PUBLIC DEFENDER, CASEWORK AND PLUMBING NOTES
- A2.3 PARTITION TYPES, DETAILS AND DOOR SCHEDULE
- A3.1 REFLECTED CEILING PLAN, DETAILS, LIGHTING AND MECHANICAL NOTES

Fire Protection

- FP2.1 FIRE PROTECTION / FIRE ALARM PLAN AND NOTES

END OF DOCUMENT 000115

KENDALL COUNTY PROBATION OFFICE
807 WEST JOHN STREET
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960 RIDGEWAY AVENUE
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FEBRUARY 2024

SECTION 002000 – NOTICE TO BIDDERS

- A. Kendall County, Illinois (hereinafter referred to as the Owner) will receive multiple prime contract bids for the following project until 2:15 pm, local time, on Feb 29, 2024 at the Facilities Management Office, 804 W. John Street, Suite B, Yorkville, IL 60560.

Project #221103 – KENDALL COUNTY PROBATION OFFICE BUILDOUT

- B. Bids will be publicly opened and read aloud at that time.
- C. Bid Package documents, drawings, and specifications shall be available on or after February 13, 2024. Bidders may visit the following websites to obtain the bid documents. Printing and shipping costs shall be the responsibility of the bidder:

www.cordoganclarkplanroom.com or www.buildingconnected.com

- D. All bids must be accompanied by a Bid Security in the form of Bid Bond in the amount of 10% of the Base Bid (plus additive alternates) made payable to the Owner.
- E. A pre-bid meeting will be on February 21, 2024 at 1:00 pm at the Kendall County Courthouse Lobby located at 807 W. John Street, Yorkville, IL 60560. Bidders are highly encouraged to attend the meeting.
- F. The Contractor shall pay, if applicable, not less than the prevailing rate of wages as established, to all laborers, workmen and mechanics in the performance of Work under this Contract in accordance with “An Act regulating wages of laborers, mechanics and other employed under contracts of Public Works.” 820 ILCS 130/1 et seq.
- G. The Owner reserves the right to reject any and all bids, to waive any informalities in bidding, and to accept the bid that is the lowest responsive, responsible bidder, which is in the best interests of the county.
- H. This Notice is written in the name of the Owner by Cordogan, Clark & Associates.

END OF NOTICE TO BIDDERS

SECTION 003000 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 SUMMARY

Lump sum proposals will be received to construct the project in accordance with the bid package(s), drawings, specifications, and project manual prepared by Cordogan Clark and all other applicable contract documents.

1.2 QUALIFICATION REQUIREMENTS

Contractors are required to submit qualifications with their proposal. Proposals will be evaluated and awarded based on proposals received by qualified contractors. See Specification Section 003500 "Requirements for Qualification" and the attached exhibits for required qualification documentation and evaluation criteria for the proposal award. Although price is a major consideration in the award of the bid, the Client may consider and base the award on other factors, including, but not limited to the following:

1. The ability, capacity, and skill of the bidder to perform services or provide the goods required.
2. Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay or interference.
3. The character, integrity, reputations, judgment, experience, and efficiency of the bidder.
4. The quality of performance of previous contracts or services.
5. The previous and existing compliance by the bidder with laws and ordinances relating to the contract or service.
6. The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service.
7. The quality, availability and adaptability of the supplies, or services to the particular use required by the Owner.
8. The contractor must certify to the Illinois Department of Human Rights that provisions have been made regarding discrimination-free workplace, as well as certifications for drug-free workplace.

1.3 SUBMISSION OF BIDS

Proposals shall be made in accordance with the following instructions. Proposals shall be delivered on or before 2:15 PM, local time, on February 29, 2024. Any bids received after this time may be rejected. Proposals must be made upon the form provided within and shall be addressed to:

Kendall County, Illinois
Facilities Management Office
804 W. John Street, Suite B
Yorkville, IL 60560
Attention: Kendall County Probation Office Buildout

The envelope shall be plainly marked:

Kendall County, Illinois
Project: Kendall County Probation Office Buildout
Do Not Open – Project #221103

1.4 AVAILABILITY OF DOCUMENTS:

Bid Package documents, drawings, and specifications shall be distributed electronically on or after February 13, 2024. Bidders may also contact the following reprographic provider to obtain the bid documents. Printing and shipping costs shall be the responsibility of the bidder:

www.cordoganclarkplanroom.com or www.buildingconnected.com

Upon receipt of the Bid Package the bidder shall immediately check that all documents listed in item 1.7 of these instructions have been received. If any section is missing, contact the Cordogan Clark immediately.

1.5 PRE-BID CONFERENCE:

Bidders are encouraged to attend the pre-bid meeting to be held on February 21, 2024, at 1:00 P.M. local time, at the Kendall County Courthouse Lobby located at 807 W. John Street, Yorkville, IL 60560. See specification section 002513 Prebid Meetings for meeting information.

1.6 SUBMISSION OF PROPOSAL

Each Bid submission shall contain the following in the order listed below:

1. Bid Bond – ONE ORIGINAL AND ONE DUPLICATE
2. Section 004000 Bid Form – COMPLETE AND IN DUPLICATE
3. Section 003500 Requirements for Qualification (with supporting documents) – COMPLETE AND IN DUPLICATE

Proposals shall be presented to the Owner for approval of selected contractors. Proposals may be rejected by the Owner as informal, unless properly signed in longhand by the bidder, or his authorized agent, and unless all dates, items and amounts called for in the Form of Proposal are furnished. Proposals which are not signed by the individual making them should have attached thereto, a Power of Attorney, evidencing authority to sign the Proposal in the name of the person for whom it is signed. Proposals which are signed for a Partnership should be signed in the firm name by required number of Partners to bind, or in the firm name by an Attorney-in-Fact. Proposals which are signed for a corporation should have the correct corporate name thereof and the signature of the President or other authorized officer of the corporation in longhand. If such proposal is signed by an official other than the President, authority of such to sign the attesting signature of the Secretary of the Corporation and the impression of the Corporate Seal.

Proposals will also be considered informal if the Form of Proposal contains any erasures or written memoranda qualifying the same. Any explanation or statement which the bidder wishes to make must be placed in the same envelope with the proposal but shall be written separately and independently and attached thereto. The Owner reserves the right to waive any or all irregularities or informalities. Proposals may be withdrawn on written or telegraphic requests received from bidders prior to the time fixed for opening of bids. Negligence on the part of the

bidders in preparing their proposal confers no right for the withdrawal of the proposal after it has been opened.

The Owner reserves the right to (1) reject all bids; (2) reject only certain bids which are non-conforming or non-responsive to the bid requirements; (3) accept only a portion, part or specific items of work of all bids which are separately set forth on the bid proposal form and reject others; (4) add additional work items based on either schedule of value bid breakdown pricing or unit pricing set forth on the bid proposal form, as the Owner shall in its sole discretion determine to be in its best interests, and to award the contract to the responsible bidder submitting the lowest bid responsive to the bidding requirements. In the event of a rejection of a portion, part, or certain items of work, the bid of each bidder shall automatically be deemed reduced by the amount of such rejected part or item at the unit price or other cost designated therefore by that bidder on its submitted bid. The Owner shall have the right to accept Alternatives in any order or combination and to determine the low Bidder on the basis of the sum of the Base Bid, Voluntary Alternates, and Alternates accepted.

The Owner reserves the right to accept any and all bids and to permit corrections of any obvious and apparent errors in bidding. The Owner reserves the right to review the references of past performances of all Contractors to be used in the project. The Owner reserves the right to review these references and other materials and accept or reject any or all Contractors. It is agreed that this bid may not be withdrawn for a period of ninety (90) days from the submittal thereof.

It is neither the intent nor the purpose of these specifications to prohibit a reliable bidder from bidding or securing a contract for the proposed goods/services. However, the documents do outline the requirements for the goods/services best suited to the needs of the Owner. Exceptions to these specifications will be considered only as voluntary alternates. Each bidder whose proposal cannot conform to these specifications shall list in detail all exceptions or alternates to the attached specifications in the voluntary alternates section of the bid form. The acceptance of such exceptions or alternates shall, however, be judged solely within the discretion of the Owner.

Purchases of building material for incorporation into this project are exempt for the Illinois Retailer's Occupation Tax and Use Tax (Sales Tax). The Owner's Tax-Exempt Number is E99959003. The bidder shall exclude such taxes from consideration in preparing his bid.

Proposals shall be presented to the Board for approval of selected contractors in March 2024. Contracts will be awarded upon approval by the Board.

1.7 EXAMINATION OF SITE AND CONDITIONS OF CONTRACT

Before submitting a proposal, each bidder shall inform himself of the conditions under which the work is to be performed, the site of the work, the obstacles which may be encountered and all other relevant matters concerning the work to be performed. Also, the bidder, if awarded the contract, shall not be allowed any extra compensation by reason of any matter or thing concerning which such bidder might have fully informed himself prior to the bidding. The project site is only available for inspection during the regular school hours by appointment only. Lack of additional site access shall not relieve the Bidder responsibility of the conditions under which the work is to be performed.

By submitting a proposal, each bidder agrees the Contract Documents have been examined, the site has been visited, all project conditions and limitations affecting the work have been noted and understands the nature of the work, general and local conditions, and accepts the contract as the form of the Contract Agreement between the Contractor and the Owner. The successful bidder's Contract Agreement may be assigned to the General Trades prime contractor. By

submitting a bid, the successful bidder consents to this assignment. Include all costs related to your work affected by these conditions. No proposal will be entertained which is not based upon the complete contract documents consisting of the following:

Specifications & Exhibits
Form of Proposal Documents
Requirements for Qualification Documents
Accompanying Drawings
Addenda, if any

Any written instructions in the Form of Addenda issued during the bidding period are to be included in the proposal and will become part of the Contract Documents.

1.8 PERMITS & LICENSES

Successful Bidders shall be responsible for all necessary permits, licenses and fees associated with their work. The Owner will obtain the building permit only. All Bidders and their subcontractor(s) must be licensed with all entities having jurisdiction and shall obtain all required building permits prior to the start of any work. Any additional permits or fees required to perform the work shall be the responsibility of the performing trade.

1.9 BONDING

The successful bidder will be required to furnish a Performance and Payment Bond in the full amount of the Contract executed on A.I.A. Form A-312, "Performance Bond and labor and Material Payment Bond" prior to the start of any work. The Performance Bond shall: 1) serve as security for faithful performance of the work; and 2) guarantee the work against defective workmanship and material for a period of not less than one (1) year following acceptance of the work.

The Labor and Material Bond shall serve as security that all wages are paid and materials provided for the work are paid by the successful Bidder. For contract awards that are less than \$100,000.00, a Letter of Credit, in a form suitable to the Owner, may be submitted as performance security, instead of a Performance Bond and a Labor and Material Payment Bond. The Surety is to be approved by the Owner. The Contractor will pay for the cost of all Bonds. All Bids shall include cost of performance and payment bond.

1.10 TIME SCHEDULE

Contractor is required to perform their work within the following Preliminary Construction Schedule. By submitting a bid each Contractor guarantees they can meet the proposed Construction Schedule. Contractor shall assume multiple mobilizations may be required to perform their scope of work. All Bids shall include costs for the same. Substantial Completion Time Schedule:

- 1) Start of On-site Construction: April 1, 2024
- 2) Substantial Completion: May 6, 2024.

1.11 CHANGE ORDERS

The successful bidder shall be required to follow the Owner's guidelines for change order mark-ups, namely that any change order proposal submitted to the Architect for an increase to the

contract sum shall be limited to a maximum of five percent (5%) of the cost of the additional materials and labor for the general conditions and profit of the Contract. This includes any increase to the Performance Bond and Labor and Material Payment Bonds. The Performance Bond and Labor and Material Payment Bonds are considered part of the general condition's costs.

1.12 SAFETY REQUIREMENTS

All Contractors and Subcontractors of any tier will be required to comply with the provisions of the "Construction Safety Act" and the "Occupational Safety and Health Act of 1970", the General conditions, as well as all other applicable Federal, State, and local requirement. Each Contractor shall be responsible for the payment of all fines levied against the Owner or Architect/Engineer, for deficiencies relating to the safety of the Contractor's work.

1.13 STATUTORY REQUIREMENTS

Vendor Information Reporting Requirements. Pursuant to 35 ILCS 200/18-50.2, the County must collect and electronically publish certain data from all vendors and subcontractors doing business with the County. To comply with this statutory obligation, the Bidder agrees to provide the County with written answers to the following questions within ten (10) business days after the parties' execution of this Agreement:

1. Is the Bidder and/or any of the Bidder's subcontractors a minority-owned, women-owned, or veteran-owned business, as defined in the Business Enterprise for Minorities, Women, and Persons, with Disabilities Act? If so, please describe.
2. If the answer to Question (1) is "yes", does the Bidder and/or any of the Bidder's subcontractors hold any certifications for those categories or are they self-certifying? If the entity holds any certifications, please describe with sufficient detail each certification received.
3. If the Bidder and/or the Bidder's subcontractors self-certify, do they qualify as a small business under the federal Small Business Administration standards?

Bidder understands that the County is utilizing funds received pursuant to the American Rescue Plan Act ("ARPA") to pay, in whole or in part, for the services set forth in this Agreement. Thus, Bidder agrees to comply with all applicable provisions of the ARPA, all guidance on the ARPA including, but not limited to the Interim Final Rule, issued by the U.S. Department of the Treasury, 2 C.F.R. 200 *et seq.*, and all other applicable federal and state statutes, regulations, interpretive guidance, and executive orders related to ARPA funded projects.

All applicable Federal and State statutes, regulations, interpretive guidance, executive orders, laws, and the rules and regulations of all authorities having jurisdiction over construction of the project, shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though written therein in full. This includes all current regulations with respect to paying the prevailing wage, which shall be incorporated into this project. To access Kendall County prevailing wage rates, visit the State of Illinois' Department of Labor website at <https://www2.illinois.gov/idol>. Not less than the Prevailing Wages as found by the Department of Labor or determined by the court on review shall be paid to laborers, workmen, and mechanics performing work under this contract.

The Illinois Human Rights Act, Title VI of the Civil Rights Act of 1964, as amended, the Americans with Disabilities Act, the Age Discrimination in Employment Act, Section 504 of the Federal Rehabilitation Act, and all applicable rules and regulations.

Bidder agrees to comply with [The Davis Bacon Act](#) — 40 U.S.C. 3141 *et seq.* as necessary. The Davis-Bacon and Related Acts, apply to contractors and subcontractors performing on federally funded or assisted contracts in excess of \$2,000 for the construction, alteration, or repair (including painting and decorating) of public buildings or public works. Davis-Bacon Act and Related Act contractors and subcontractors must pay their laborers and mechanics employed under the contract no less than the locally prevailing wages and fringe benefits for corresponding work on similar projects in the area. The Davis-Bacon Act directs the Department of Labor to determine such locally prevailing wage rates. The Davis-Bacon Act prevailing wage provisions apply to the “Related Acts,” under which federal agencies assist construction projects through grants, loans, loan guarantees, and insurance. Examples of the related Acts are the American Recovery and Reinvestment Act of 2009, the Federal-Aid Highway Acts, the Housing and Community Development Act of 1974, and the Federal Water Pollution Control Act.

The Contract Work Hours and Safety Standards Act, 40 U.S.C. 3702 and 3704, as necessary.

If at the time the Agreement is executed, or if during the term of the Agreement, there is a period of excessive unemployment in Illinois as defined in the Employment of Illinois Workers on Public Works Act, 30 ILCS 570/0.01 *et seq.*, (hereinafter referred to as “the Illinois Workers Act”), Bidder, its consultants, contractors, subcontractors, and agents agree to employ Illinois laborers on this Project in accordance with the Illinois Workers Act. Bidder understands that the Illinois Workers Act defines (a) “period of excessive unemployment” as “as any month following two consecutive calendar months during which the level of unemployment in the State of Illinois has exceeded 5%, as measured by the United States Bureau of Labor Statistics in its monthly publication of employment and unemployment figures”, and (b) “Illinois laborer” as “any person who has resided in Illinois for at least thirty (30) days and intends to become or remain an Illinois resident.” *See* 30 ILCS 570/1. Bidder understands and agrees that its failure to comply with this provision of the Agreement may result in immediate termination of the Agreement.

Contractors shall obtain and continue in force during the performance of such work, all insurance necessary and appropriate and that each contractor and/or subcontractor contracted with to perform work shall name the County as an Additional Insured on a Primary and Non-Contributory basis with respect to all liability coverage, as well as a waiver of subrogation with respect to the general liability and workers’ compensation in favor of the County. Further, each contractor and/or subcontractor to provide indemnification and hold harmless guarantees to the County during the work.

Bidder and its consultants, employees, contractors, subcontractors, and agents agree to comply with all provisions of the Substance Abuse Prevention on Public Works Act, 820 ILCS 265/1 *et seq.* and the Illinois Drug Free Workplace Act, 30 ILCS 580/1 *et seq.*

Public Act 094-0515 requires the successful Contractor submit a certified payroll to the Owner on a monthly basis for the contracts they have been awarded. All Contractors shall submit monthly certified payroll reports to the Owner. No payment requests will be processed without certified payroll reports.

All Contractors are required to submit in triplicate the following on a monthly basis as scheduled and outlined in Specification Section 012900 – Payment Procedures: AIA G702 cover page & AIA G703 continuation sheets, partial lien waivers for the full amount of the total

current completed amount, trailing lien waivers for all suppliers and subcontractors, and certified payroll reports for the current billing period.

It is understood and agreed to by the parties that all contracts entered into by a government body, such as the County, are open to public review and may be discussed in open session pursuant to the Illinois Open Meetings Act (5 ILCS 120/1 *et seq.*) and/or may be released pursuant to the Illinois Freedom of Information Act (5 ILCS 140/1 *et seq.*), any other applicable state or federal law, and/or pursuant to subpoena and/or court order.

1.14 BACKGROUND CHECKS / SECURITY

Contractor shall exercise general and overall control of its officers, employees and/or agents. Contractor agrees that no one shall be assigned to perform work at Kendall County's facilities on behalf of General Contractor, Contractor's consultants, subcontractors and their respective officers, employees, agents and assigns unless Contractor has completed a criminal background investigation for each individual to be performing work at the site. In the event that the individual's criminal background investigation reveals that the individual has a conviction record that has not been sealed, expunged, or impounded under Section 5.2 of the Criminal Identification Act, Contractor agrees that the individual shall not be assigned to perform work on or at Kendall County's facilities absent prior written consent from Kendall County. Kendall County, at any time, for any reason and in Kendall County's sole discretion, may require General Contractor and/or Contractor's consultants, and/or subcontractors to remove any individual from performing any further work under this Agreement.

Contractor understands, and agrees, that any person who takes into, or out of, or attempts to take into, or out of, a correctional facility, or the grounds belonging to or adjacent to the correctional facility, any item not specifically authorized by the correctional facility, such as contraband, shall be prosecuted. All persons, including employees and visitors, entering upon such premises are subject to routine searches of their persons, vehicles, property and/or packages. Contraband shall include, but not be limited to, any dangerous drug, narcotic drug, intoxicating liquor, deadly weapon, dangerous instrument, ammunition, explosive or any other article whose use of or possession of would endanger the safety, security or preservation of order in a correctional facility or any persons therein. Company further agrees that it shall notify correctional facility personnel of the loss or breakage of any tools and equipment while within the facility.

1.15 ADDITIONAL INFORMATION

Copies of AIA standard forms may be obtained from the American Institute of Architects; <http://www.aia.org/contractdocs/purchase/index.htm>; docspurchases@aia.org; (800) 942-7732.

The successful bidder shall be required to complete all required progress documentation.

The bidder shall, in the event of any discrepancies, omissions, or errors in the Contract Documents, or in the event of doubt on the part of a bidder as to their intent or meaning, direct inquiries in writing to: Attention: Ben Nelson, Cordogan Clark, bnelson@cordoganclark.com. All questions relating to specific scope responsibility or other construction related activity shall be addressed to the same. No inquiries shall be reviewed or accepted 72 hours prior to bid opening. No extras shall be accepted on this project unless initiated by the Owner. Discrepancies, exclusions, clarification regarding each subcontractor's scope of work shall be addressed by subcontractor, in writing, to the Architect's office during the bidding process.

END OF SECTION 003000

DOCUMENT 003113 - PRELIMINARY SCHEDULES

1.1 PROJECT SCHEDULE

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but do not affect Contract Time requirements. This Document and its attachments are not part of the Contract Documents.
- B. Available Project information includes the following:
1. Bid Documents Available: February 13, 2024.
 2. Pre-Bid Meeting: February 21, 2024, 1:00 p.m. (local time) on site.
 3. Bids Due: February 29, 2024, 2:15 p.m. (local time)
 4. Award of Contract: March 20, 2024, after Owner board meeting.
 5. Commencement of Construction: April 1, 2024.
 6. Final Completion: May 3, 2024.
- C. Related Requirements:
1. Document 004113 "Bid Form - Stipulated Sum (Single-Prime Contract)" for Contract Time.
 2. Section 011000 "Summary" for phased construction requirements.
 3. Section 013200 "Construction Progress Documentation" for Contractor's construction schedule requirements.

END OF DOCUMENT 003113

SECTION 003500 – REQUIREMENTS FOR QUALIFICATION

1.1 PURPOSE, LAWS, AND REGULATIONS

- A. The purpose of the Qualification Procedure described in this Document is to provide Owner with a mechanism to evaluate and determine whether Bidders are qualified to participate in the construction of the Project.
- B. Applicable provisions of all state and local entities having authority shall be observed in the soliciting, receiving, and evaluating of Bidders' qualifications. Applicable provisions shall be observed in bidding, letting, and execution of the Work.
- C. Prospective Bidders are required to comply with these Requirements for Qualification. Only those Bidders who have complied with the Requirements for Qualification and have been determined to be qualified will be eligible for acceptance of construction bids on the Project.

1.2 DEFINITIONS

- A. Financial Statement: The requirement for submitting a financial statement as an attachment to AIA Document A305, "Contractor's Qualification Statement" shall be understood to mean a certified annual audit, prepared according to generally acceptable accounting practices and signed by an independent certified public accountant. A Reviewed Statement of Assets and Liabilities, prepared and signed by an independent certified public accountant, is also acceptable. A self-prepared annual compiled financial statement or balance sheet is unacceptable.
- B. Bidder: A Bidder is a person or entity who submits a Submittal of Qualifications to Owner included with their bid documents.
- C. Project: Generally described in the Invitation to Bidders and/or the Advertisement for Bids.

1.3 QUALIFICATION DOCUMENTS

- A. Qualification Documents: Consist of the following:
 - 1. AIA Document A305, "Contractor's Qualification Statement";
 - 2. Additional documents issued by the Owner.
- B. Obtaining Qualification Documents: Complete sets of the Qualification Documents are contained herein. Prospective Bidders shall use complete sets of Qualification Documents in preparing their bid documents. Owner assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Qualification Documents. Incomplete bid documents may be rejected by the Owner.

- C. Interpretation or Correction of Qualification Documents: If the Bidder is in doubt as to the interpretation of any part of the Qualification Documents, or finds discrepancies in or omissions from any part of the Qualification Documents, it must submit a written Request for Interpretation thereof no later than five (5) working days prior to acceptance of bid documents. Address all communications to the Architect as outlined in Specification Section 003000, Instruction to Bidders.

1.4 QUALIFICATION PROCEDURES

- A. Form of Qualification Submittal shall include the following, properly executed and with all items filled out in ink or typed, and all additional data, attachments, and forms provided. Do not change or add words to the Qualification Statement or forms. All signatures must be original (and sealed if a corporation) and must be notarized and sealed by a Notary Public.:
 - 1. AIA Document A305, "Contractor's Qualification Statement";
- B. Modification to Requirements for Qualification:
 - 1. Clarifications, alterations, or changes made by Architect or Owner to the Requirements for Qualification shall be in writing only. Verbal information is not valid or binding.
 - 2. Modifications will be emailed to those Prospective Bidders having obtained Bid Documents from the issuing office.
- C. Submission of Qualification Documents:
 - 1. Each Submittal of Qualifications shall be included with the Bid proposal as outlined in Specification Section 003000, Instructions to Bidders.
 - 2. It is the sole responsibility of the Prospective Bidder to ensure that its submittal is received by the submittal date and time. No submittal submitted after the time fixed for receiving submittals will be considered; late submittals will be returned to the Prospective Bidder unopened.
 - 3. Owner reserves the right to waive any informality and to request additional information from Prospective Bidders, at Owner's discretion.
- D. Attachments:
 - 1. Prospective Bidders shall complete all required forms and attachments described in the Qualification Documents, entering "Not Applicable" where information does not apply. Absence of any of the forms included in the Prequalification Documents will be reason for possible disqualification.
- E. Status of Prospective Bidders:
 - 1. Proprietors submitting bids shall indicate their status as proprietors.
 - 2. Prospective Bidders submitting qualifications for partnerships shall indicate their status as partners and shall submit a certified copy of the power of attorney authorizing the executor of the submittal to bind the partnership.
 - 3. Prospective Bidders submitting qualifications for corporations shall indicate their status as corporations and shall submit a certified copy of the board of directors' authorization

for the Prospective Bidder to bind the corporation and shall affix the corporate seal on the submittal.

4. Prospective Bidders shall provide the following:
 - a. Names and addresses of proprietors, of all members of a partnership, or of the corporation's officers.
 - b. Name of jurisdiction where the partnership is registered or where the corporation is incorporated. Corporations must be licensed to do business in Project state at the time of executing the Contract.

1.5 QUALIFICATION CRITERIA

A. Prospective Bidders must demonstrate the following to the satisfaction of Owner:

1. Proper license under the laws and regulations governing their respective trade(s).
2. Capacity to provide Performance Bond, Labor and Material Payment Bond, and Insurance in a form acceptable to Owner in amounts adequate to bond the Work based on the scope indicated in the Bid Documents.
3. Applicable experience of firm as described in the Contractor's Qualification Statement, including the following:
 - a. Experience of Firm: The firm in its current organization shall have successfully completed minimum of five projects of similar type, quality, and scope, including a minimum of two within the three years. The firm shall have a record of project completion, credit record, record of judgment claims, arbitration proceedings, and suits pending or outstanding acceptable to Owner.
 - b. Experience of Firm Officers: The firm officers shall have personal record of project completion acceptable to Owner.
 - c. Experience of Project and Field Management Staff to Be Committed by the Prospective Bidder to Carry Out the Work: The assigned project manager and field superintendent must have successfully completed minimum of three projects of similar type, quality, and scope.
 - d. For purposes of this submittal, reference to "key individuals" as described in the Contractor's Qualification Statement shall be understood to mean the principal in charge, the project manager(s), and the project field superintendent(s) committed by the Prospective Bidder to carry out the Work of this Project. Prospective Bidder by submitting qualifications of key individuals agrees that Owner reserves the right to approve or reject subsequent reassignment of key individuals.
 - e. For purposes of this submittal, "successful completion" shall be understood to mean completion of project within project schedule and budget. Provide additional information indicating reasons why any referenced project did not meet project schedule or project budget.
 - f. For purposes of this Qualification, "similar project" shall be understood to include the following project elements:
 - 1) Renovation/addition work on occupied sites (if similar to the scope and size of the proposed project.)
4. Adequate financial resources, including ability to secure materials and labor necessary for completion of the Work and other work in hand, within the anticipated contract times, and reflecting the anticipated retainage from progress payments.

5. Work-in-hand capacity, such that the Prospective Bidder demonstrates adequate work under contract to continue its business operations at least at their current level, at the same time indicating the capability to carry out Owner's proposed work.
 6. Adequate organization to complete work of the scope anticipated, including firm management, project management, field superintendence, and field engineering and quality control.
 7. Acceptable past performance as indicated by firm's references, including ability to meet contract time and to monitor, manage, and communicate interim scheduling requirements, to carry out required quality-control activities, to properly prepare interim and final payment requests, and to successfully complete project closeout requirements.
 8. Acceptable documentation of firm's employee screening practices as indicating by affidavit describing background check procedures for firm's employees and requirements for same incorporated in firm's subcontracts.
 9. The character, integrity, reputations, judgment, experience and efficiency of the bidder and the quality of performance of previous contracts or services performed as evidenced by the feedback obtained by references contacted. References may include contacts provided by the Bidder or obtained by other means who can attest to the aforementioned evaluation criteria.
- B. Consideration of qualifications may be withheld if the Qualification Statement shows any unexplained erasures, omissions, alterations of form, additions not called for, added restrictions or qualifying conditions, or other irregularities of any kind.
- C. Owner may make such investigations as it deems necessary to determine the ability of the Prospective Bidder to perform the Work, and the Prospective Bidder shall furnish to Owner all such information for this purpose as Owner may request. Owner reserves the right to withhold qualification if the evidence submitted by or investigation of such Prospective Bidder fails to satisfy Owner that such Prospective Bidder is properly qualified to carry out the obligations of the proposed Project. The determination of which bidders are prequalified is not protestable, except as allowed by law.
- D. Qualification Submittal and data contained therein is considered privileged and confidential and will not be disclosed to any outside party except as required by law.

1.6 BONDS AND INSURANCE

- A. The Prospective Bidder shall provide as part of the Submittal of Qualifications evidence of its ability to furnish below:
1. Performance Bond, a Payment Bond, and a Labor and Material Bond, each in the amount of 100 percent of the Contract Sum, with a corporate surety authorized to transact business in Project's jurisdiction.
 2. Satisfactory certificates of insurance in the amount and types required by statute, but not less than the following:
 - a. Professional design errors and omissions insurance endorsement for delegated design by Contractor's professional engineer.
 - b. Workers' Compensation insurance provisions: statutory limits.
 - c. Commercial General Liability insurance provisions: at limits established by Owner in Project Contract Documents.

1.7 ACCEPTANCE OF QUALIFICATIONS

- A. Prospective bidders will be notified of Owner's determination, within the bid evaluation period.
- B. Evaluations will be confidential. Notifications will be publicly available information.
- C. Owner may deny qualification if it finds one or more of the following:
 - 1. The Prospective Bidder does not have sufficient financial capacity to perform the Work.
 - 2. The Prospective Bidder does not have the appropriate experience or reputation to perform the Work, including, but not limited to, having met the experience or reputation criteria set forth herein.
 - 3. The Prospective Bidder or any officer, director, or owner thereof has had judgments entered against him within the past five years for the breach of contracts for governmental or nongovernmental construction work including, but not limited to, design-build or construction management contracts.
 - 4. The Prospective Bidder has been in substantial noncompliance with the terms and conditions of prior construction with Owner, or in documented substantial noncompliance with the terms and conditions of prior construction with another public body without good cause.
 - 5. The Prospective Bidder or any officer, director, owner, or chief financial official thereof has been convicted within the past 10 years of a crime related to governmental or nongovernmental construction or contracting.
 - 6. The Prospective Bidder or any officer, director, or owner thereof is currently debarred pursuant to an established debarment procedure from bidding or contracting by any public body, agency of another state, or agency of the Federal Government.
 - 7. The Prospective Bidder failed to provide to the public body in a timely manner any information required by the public body relevant to the six preceding subparagraphs.
 - 8. The Prospective Bidder provides false, nonresponsive, misleading, or incomplete information for items required herein.
- D. The acceptance of a Prospective Bidder's qualifications will be an award of contract should the Prospective Bidder provide the lowest qualified responsive and responsible Bid, signed by a duly authorized representative of Owner; no other act by Owner or its agents shall constitute the acceptance of qualifications. The acceptance of a Prospective Bidder's qualifications by Owner does not constitute a contract or promise to award a contract to the Prospective Bidder.

1.8 PROSPECTIVE BIDDER'S CHECKLIST

- A. In an effort to assist the Prospective Bidder in properly completing all documentation required, the following checklist is provided for the Prospective Bidder's convenience. The Prospective Bidder is solely responsible for verifying compliance with prequalification requirements.
 - 1. Reviewed the Qualification Documents, including the Requirements for Qualification, prior to preparing this submittal.
 - 2. Prepared AIA Document A305, "Contractor's Qualification Statement," as required by the document instructions and by the Requirements for Prequalification, including all attachments and data required as part of the Qualification Statement, properly notarized.
 - 3. Attached: Copy of applicable Contractor's license(s).
 - 4. Attached: Resumes of key individuals.

5. Attached: Other attachments as necessary to provide information required.
6. By submitting notarized statement, the Prospective Bidder certifies that the Bidder can provide executed Performance Bond and Labor and Material Bond meeting requirements given in the Bid Documents.
7. By submitting notarized statement, the Prospective Bidder certifies that the Bidder can provide Certificates of Insurance in the amounts indicated in Specification Section 005000, "Supplementary General Conditions".

KENDALL COUNTY PROBATION OFFICE
807 WEST JOHN STREET
YORKVILLE, ILLINOIS
CCA PROJECT NUMBER: 221103
BID SET

CORDOGAN CLARK & ASSOCIATES, INC.
960 RIDGEWAY AVENUE
AURORA, ILLINOIS
630-896-4678
FEBRUARY 2024

SECTION 004000 – FORM OF PROPOSAL

A. GENERAL

FORM OF PROPOSAL FOR KENDALL COUNTY PROBATION OFFICE BUIDLOUT

SUBMITTED BY: _____ DATE: _____
(Company Name)

TO: Kendall County, Illinois

The undersigned having carefully examined the Contract Documents consisting of the following: Specifications (Inclusive of all Sections and Exhibits); Drawings; and Addenda, if any. As prepared by Cordogan, Clark & Associates, Inc., which Contract Documents form a component part of this Proposal, and having examined the premises and conditions affecting the work, proposes to furnish all labor and materials required for the Contractor as follows:

B. ADDENDA

I acknowledge receipt of the following Addenda:

No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____

C. BASE BID

In accordance with Drawings and Specifications for general contract including all divisions of work as indicated in Work Included in the Specifications and as shown in the drawings.

TOTAL BASE BID AMOUNT: \$ _____

AS WRITTEN: _____

Total base bid is to include full project scope, including allowances and contingency as indicated in documents and itemized in the schedule of values.

Contractor is to include the following allowances within their total base bid amount. Contractor to utilize the corresponding submitted bid package number below.

Bid Package #01 – General Trades

Total Base Bid: \$ _____

Bid Package #02 – Electrical

Total Base Bid: \$ _____

D. VOLUNTARY ALTERNATES

The Contractor is encouraged to provide Voluntary Alternates. If Contractor elects to do so, it must be a modification to the Base Bid and shall not be included in the Base Bid. The selected alternates will be used to determine the lowest qualified Bid for this Bid Package. Any alternates not specifically outlined on the Bid Proposal Form shall be submitted in the form outlined below. Failure to do so may result in the rejection of the bid. A separate sheet can be included with the bid form, if required.

Voluntary Alternate #01 _____ \$ _____
Add/Deduct/No Change

E. UNIT PRICES

All unit cost are to include equipment material and labor costs, including bonding, overhead and profit. Bidder must quote on all items called for in their bid package. This form is required to be attached to the Bid Form. The undersigned Bidder proposes the amounts below be added to or deducted from the Contract Sum on performance and measurement of the individual items of Work and for adjustment of the quantity given in the Unit-Price Allowance for the actual measurement of individual items of the Work. If the unit price does not affect the Work of this Contract, the Bidder shall indicate "NOT APPLICABLE."

Bidder is also required to email the Schedule of Values and Unit Pricing in Microsoft Excel (.XLS) electronic format one to 24 hours after bid due date but no earlier or later to bkronewitter@cordoganclark.com. Bidders may attach a printed copy of the Unit Prices in lieu of handwriting each entry.

SCHEDULE OF UNIT PRICES

UNIT PRICING

- | | | |
|--|----|-------|
| 1. Furnish and Install 3 5/8" Metal Stud 5/8" Gyp each Side, taped and finished. | SF | _____ |
| 2. Furnish and Install furring and Gyp on one side taped and finished. | LF | _____ |
| 3. Furnish and Install 3 1/2" Sound Batt Insulation | SF | _____ |
| 4. Reinforced kraft paper floor protection with taped seams-200 SF minimum | SF | _____ |
| 5. Furnish and install additional 10 square feet base carpet flooring system | SF | _____ |
| 6. Furnish and install additional 10 linear feet Vinyl cove base. | LF | _____ |
| 7. Carpentry Labor Rate | HR | _____ |

8. General Labor Rate	HR	_____
9. Duplex 20 A GFI Receptacle with 50' of conduit and wire	EA	_____
10. Light Switch with 50' of conduit and wire	EA	_____
11. Tele/Data Empty box with stub to ceiling	EA	_____
12. Furnish and install 150' of low volt Cat-6e cable to box with port faceplate.	EA	_____
13. Exit Sign with 50' of conduit and wire	EA	_____

All unit costs are to include equipment material and labor costs, including bonding, overhead and profit. Bidder must quote on all items called for in their bid package.

F. BID SECURITY

Accompanying the proposal is a Bid Bond or (Certified Check) as surety in the amount of not less than 10% of the Base Bid payable to the Owner, which it is agreed will be forfeited if the undersigned fails to execute the Contract in conformity with Specifications and Furnish Performance and Labor and Material Payment Bonds as specified within ten (10) days after notification of the award of the Contract to the undersigned

G. PERFORMANCE / PAYMENT BOND

The undersigned agrees to provide an acceptable Performance and Labor and Material Payment Bonds, in accordance with AIA Document A312, in the amount of 100% of the Base Bid of which the cost of the Bonds are included in the Bid.

H. ATTACHMENT

The undersigned acknowledges that he has read and understands the CERTIFICATE OF ELIGIBILITY TO BID attached to this Bid Form and signed and attested thereto. The undersigned further acknowledges that said CERTIFICATE OF ELIGIBILITY is a part of the Contract Documents and will be attached to the Agreement.

I. REJECTION AND WITHDRAWAL OF BID

The Owner reserves the right to accept or reject any or all of the above proposals.

J. TIME OF COMPLETION

The undersigned agrees, if awarded the Contract, to begin work immediately upon notification by the Architect. The undersigned agrees, if awarded the Contract, to complete the work within the time frame specified in Specification Section 003000.

K. SIGNATURES FORM

IF AN INDIVIDUAL:

Longhand Signature of Bidder: _____

Doing Business as: _____

Business Address: _____

City: _____ State: _____ Zip: _____

IF A CO-PARTNERSHIP:

Name of Firm: _____

By: _____

Business Address:

City: _____ State: _____ Zip: _____

Names and Addresses of All Members of the Firm:

IF A CORPORATION:

Corporate Name: _____

A Corporation in State of: _____

By (President): _____

Name of Officers:

President: _____

Secretary: _____

Treasurer: _____

Corporate Seal:

ATTEST: _____

L. CERTIFICATE OF ELIGIBILITY TO BID

The Bidder/Contractor certifies that the Contractor is not barred from bidding on the contract as a result of a conviction for either bid-rigging or bid rotating under Article 33E of the Criminal Code of 1961. The Bidder/Contractor acknowledges that this certificate is a part of the Contract Documents and will be attached to the Owner/Contractor Agreement.

Date: _____ Firm Name: _____

Official Address: _____

By: _____

Position: _____

Where Bidder is a Corporation, add:

Attest: _____

(Secretary)

(Seal

Subscribed and Sworn to Before Me this _____ day of _____, 20__

My Commission Expires: _____

Notary Public

_____, 20__

DRUG FREE WORKPLACE

The bidder or contractor, having 25 employees or more, does hereby certify pursuant to Section 3 of the Illinois Drug-Free Workplace Act (III. Rev. Stat. Ch. 127 132.313) that [he, she, it] shall provide a drug-free workplace for all employees engaged in the performance of work under the contract by complying with the requirements of the Illinois Drug-Free Workplace Act, further certified that [he, she, it] is not ineligible for award of this contract by reason of debarment for a violation of the Illinois Drug-Free Workplace Act.

Firm Name: _____

By: _____
(Authorized Agent of Contractor)

Title: _____

Subscribed and sworn to before me _____

This day of _____

CERTIFICATE OF COMPLIANCE WITH ILLINOIS HUMAN RIGHTS ACT

_____ (Contractor), does hereby certify pursuant to P.A. 87-1257, the Illinois Human Rights Act, that (he, she, it) has adopted a written sexual harassment policy that includes at the minimum the following information: (I) the illegality of sexual harassment; (II) the definition of sexual harassment under Illinois law, (III) a description of sexual harassment, utilizing examples; (IV) internal complaint process including penalty; (V) the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Illinois Human Rights Commission; (VI) directions on how to contact the Department and Commission; and (VII) protection against retaliation as provided by Section 6-101 of the Illinois Human Rights Act.

By: _____

Its: _____

Date: _____

Notary Public

**CERTIFICATION REGARDING CRIMINAL BACKGROUND
INVESTIGATIONS**

Contractor hereby represents, warrants, and certifies that no officer or director thereof has any knowledge that any employee thereof has been convicted of committing or attempting to commit “Criminal Code of 1961,” 720 ILCS, Sections 5/11-6 (Indecent Solicitation of a Child), 5/11-9 (Public Indecency), 5/11-14 (Prostitution), 5/11-15 (Soliciting for a Prostitute), 5/11-15.1 (Soliciting for a Juvenile Prostitute), 5/11-9 (Pimping), 5/11-19.1 (Juvenile Pimping), 5/11-19.2 (Exploitation of a Child), 5/11-20 (Obscenity), 5/11-20.1 (Sexual Assault), 5/12-14 (Aggravated Criminal Sexual Abuse), and/or those offenses defined in the “Cannabis Control Act,” 720 ILCS 570/100 et. seq. And/or any offense committed or attempted in any state or against the laws of the United States, which if committed or attempted in this State, would have been punishable as on or more of the foregoing offenses.

Contractor further agrees that it shall not employ any person who have or may have direct, daily contact with the pupils of any school in the district, and for whom a criminal background investigation has not been conducted pursuant hereto, and further represents and agrees that all applicants for any such employment shall furnish with their applications the attached written “Authorization for Criminal Background Information” form authorizing the Board of Education to request a criminal background investigation of said applicant pursuant to Section 5/10-21.9 of the School Code of Illinois and to receive criminal history record information pursuant thereto to determine if the applicant has been convicted of committing or attempting to commit any of the criminal or drug offenses enumerated above. Contractor further agrees to submit with said authorization payment for any costs and expenses associated with the criminal background investigation.

Contractor further represents, warrants, and certifies that no applicant for employment with respect to whom the criminal investigation reveals any conviction for committing and/or attempting to commit any of the above enumerated offenses, shall be employed thereby in any position that involves or may involve contact with the students of the school district.

This certification is executed on the date hereinafter indicated by the designated contractor by its duly authorized officer.

By: _____

Its: _____

Date: _____

END OF SECTION 004000

SECTION 005000 – SUPPLEMENTARY GENERAL CONDITIONS

SUPPLEMENTARY GENERAL CONDITIONS

The Supplementary General Conditions change, delete or add to the General Conditions. The paragraph numbering system of A.I.A. Document A-201, (2017 Edition) is continued in the Supplementary General Conditions. The following supplements modify AIA Document A-201 (2017 Edition) General Conditions of the Contract for Construction. 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.

ALL ARTICLES – the word “fiduciary” in the AIA A201 shall hereby be stricken.

ARTICLE 1: GENERAL PROVISIONS:

1.1. BASIC DEFINITIONS – Add the following definitions

- 1.1.8 The Initial Decision Maker shall be defined as the Kendall County in consultation with the Architect/CM.
- 1.1.9 The Surety
The surety is any firm or corporation that has executed as surety the Contractor’s Performance Bond and Payment Bond guaranteeing the performance of the contract.”
- 1.1.10 The Site
The site is the premises or location where the work under the contract is to be performed.”

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS – Add the following subparagraph:

- “1.2.1.1 Priority of Documents. In the event of any conflict, discrepancy, or inconsistency among the Contract Documents, interpretation shall be based on the following descending order of priority:
- A. The Agreement
 - B. Supplemental or special conditions (if any)
 - C. The General Conditions
 - D. Specifications
 - E. Drawings, and among the drawings, the following:
 - 1. As between figures given on drawings and scaled measurements, the figures shall govern;
 - 2. As between large scale drawings and small scale drawings, the large scale drawings shall govern.

In the event that Work is called for by the drawings but not by the specifications, or by the specifications but not by the drawings, the Contractor shall be responsible for such Work.”

F. The Owner makes the final determination as to the meaning of the Contract in the event of discrepancies.

Add the following paragraph:

“1.7. COMMUNICATIONS

1.7.1 All notices, demands, requests, instructions, approvals, proposals and claims from the Architect, the owner, or the contractor shall be in writing.”

1.7.2 Electronic Data Protocols

Digital documents according to the Electronic Protocols AIA-E201 shall be an approved written form except the sender shall be responsible for verification that message was received.”

ARTICLE 2: OWNER

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER – add the following subparagraphs:

“2.2.5.1. In giving interpretations of the Documents, the Owner, through the Architect, shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purpose of the Project.”

ARTICLE 3: CONTRACTOR

3.4 LABOR AND MATERIALS – Add the following subparagraphs:

“3.4.2.1. Where items of equipment and/or materials are identified in the specifications by a manufacturer’s or trade name, model, or catalog number, only such specified item may be used in the work.”

3.6 TAXES – Add the following subparagraph:

“3.6.1. Purchases of building materials for use in the project are exempt from the Illinois Retailer’s Occupation and Use Tax. The bidder shall exclude said taxes from consideration in preparing his bid.”

ARTICLE 4: ARCHITECT

4.2.6 The first sentence is deleted and in its place insert the following:

“Claims by either the Owner and Contractor must be made in writing within the limitations period set by Illinois statutes.”

ARTICLE 5: SUBCONTRACTORS (No modifications to this article.)

ARTICLE 6: CONSTRUCTION BY THE OWNER OR BY SEPARATE CONTRACTORS

(No modifications to this article.)

ARTICLE 7: CHANGES IN THE WORK (insert the following:)

7.5 ITEMIZED ACCOUNTING OF COSTS

“7.5.1 For work not covered by the original Contract, the Contractor shall prepare a detailed proposal for the changed work using the forms provided. The proposal shall itemize the changes to the work and show the direct cost of all labor, material, and equipment for each item. Direct costs are those specifically identified with the work. All other costs such as general supervision, liability insurance, etc. are considered overhead. Subcontractors shall prepare similar proposals for inclusion in the Contractor’s proposal.

“7.5.1.1. The direct cost of labor shall be identified as:

- A. Taxable wages (based on current prevailing wage rate table).
- B. Union benefits and fringes (only costs required by the Union Agreement allowed).
- C. FICA taxes.
- D. Federal unemployment.
- E. State unemployment.
- F. Worker’s compensation.
- G. Travel costs.”

ARTICLE 8: TIME (No modifications to this article.)

ARTICLE 9: PAYMENTS AND COMPLETION

9.3. APPLICATIONS FOR PAYMENT – Add the following subparagraphs:

“9.3.1.3. To insure the proper performance of this Contract the Owner will retain 10% of the amount of each estimate until final completion and acceptance of all work covered by this Contract.”

“9.3.2.1. Although all material and work covered by partial payments made shall have become the property of the Owner, this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made, or the restoration of any damaged work, or as a waiver of the right of the Owner to require the fulfillment of all terms of the Contract.”

“9.3.2.2. The stored materials may be included in the Application for Payment providing the Architect can verify the cost and the existence of such stored materials. The Contractor shall reimburse the Owner for all of the Architect’s expenses required to verify materials which are stored away from the Project site if the Contractor wishes to include the cost of the stored material in an Application for Payment. Applications for stored materials must meet the following criteria:

- a. Evidence of insurance is required for the stored product.
- b. The product must be produced for this project only.
- c. The product must be stored separately from other inventory and identified for this project only.”

“9.3.4. The Contractor shall provide all statements, affidavits and waivers required by the Mechanics’ Liens Law of the State of Illinois, including Section 5 thereof, at such time and in such form as

provided therein to protect the Owner against mechanics' or other liens, and the Contractor hereby acknowledges receipt of notice from the Owner to furnish same.”

“9.3.5. Each application for payment must be accompanied by Contractor’s Affidavits and by partial waivers of lien form all subcontractors, as well as material Suppliers, showing that the amount of money paid to date to each Subcontractor and Supplier is at least equivalent to the amount shown as the estimated total value of all labor and material incorporated into the work through the immediately preceding calendar month’s estimate of work as submitted by the Contractor, less contract retainage.”

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.5 CRIMINAL BACKGROUND & INVESTIGATION CHECKS

“10.5.1 The contractor shall not send to any County government property any employee or agent who would be prohibited from being employed by the County due to a conviction of a crime listed in 105 ILCS 5/10-21.9. The contractor shall obtain a criminal history background check before sending any employee or agent to any school building or school property. Additionally, at least quarterly, the contractor shall contact the local law enforcement authority where each employee or agent resides to determine if the employee is on the list of registered felons who have committed child sex offenses.”

ARTICLE 11: INSURANCE AND BONDS

11.1 CONTRACTOR’S LIABILITY INSURANCE – Add the following paragraphs:

"11.1.2.1 The insurance coverage required here-in-under shall be the minimum amounts maintained by the Contractor and Subcontractors until all work is completed and accepted by the Owner.

A. Workers Compensation

1. State: Statutory
2. Applicable Federal: Statutory
3. Employer’s Liability:
 - a. \$1,000,000 per Accident
 - b. \$1,000,000 Occupational Disease

B. Commercial General Liability

1. Each Occurrence \$1,000,000
2. Products/Complete Operations Aggregate \$2,000,000
3. Personal/Advertising Injury \$1,000,000
4. General Aggregate \$2,000,000
5. Policy shall include:
 - a. Premises – Operations
 - b. Independent Contractors Liability
 - c. Products and Completed Operations: Maintained for minimum of one year after date of final Certificate for Payment, in full amount of the limits specified above.
 - d. Contractual Liability
 - e. Coverage for explosion (x), collapse (c) and underground (u)
 - f. Per Project Aggregate

6. The Commercial General Liability policy shall include a contractual liability endorsement insuring the indemnity required by the contract. The indemnities shall be named as additional insureds on the Contractor's Commercial General Liability policy using form CG 20 10 or its equivalent. The additional insured endorsement shall provide the following:
 - a. That the coverage afforded the additional insureds will be primary insurance for the additional insureds with respect to claims arising out of operations performed by or on behalf of the contractor.
 - b. That if the additional insureds have other insurance which is applicable to the loss, such other insurance will be on an excess or contingent basis.
 - c. That the amount of the company's liability under the insurance policy will not be reduced by the existence of such other insurance, and
 - d. That the additional insureds will not be given less than 30 days prior written notice of any cancellation thereof.
 - e. The Contractor will furnish a Certificate of Insurance evidencing the foregoing.
- C. Business Auto Liability (including owned, non-owned and hired vehicles).
1. Bodily Injury
 - a. \$1,000,000 Per Person
 - b. \$1,000,000 Per Accident
 2. Property Damage \$1,000,000
 3. Or Combined Single Limit \$1,000,000
- D. Umbrella
1. If the Contractor's Workers Compensation, Commercial General Liability and Business Auto policies do not have these minimum limits, an Umbrella policy, written in an insurance company acceptable to the owner, may be used to meet the minimum limits required.
 2. Umbrella Excess Liability (in addition to primary coverage): \$5,000,000
- E. Owner's and Contractor's Protective Liability: the Owner's and contractor's Protective Liability Insurance required herein shall be purchased and maintained by the Contractor. The policy shall name the Owner as named insured, and the Architect and the Architect's consultants as additional insureds. The insurance shall afford the same protection and be in the same amounts as required for the commercial General Liability Insurance for the Contractor and shall protect the named insureds from all claims for bodily injury and property damage arising from its ownership of the premises and general supervision or observation of the Work, including claims by employees of the contractor, and Subcontractors or Sub-subcontractors.
1. The following parties shall be included as Additional Insureds on all contractor's and subcontractor's Certificates of Insurance: The County shall be named as additional insured for the general Liability, Auto Liability and Excess Liability. A waiver of subrogation applies for the General Liability, Auto Liability and Workers Compensation
 - a. Butler School District 53
 - b. Cordogan Clark & Associates, Inc.

- c. Cordogan Clark Consulting Services, Inc.

Add the following new Section 11.1.3.1 to Section 11.1.3:

11.1.3.1 Prior to the commencement of the Work, Contractor shall submit to the Construction Manager/ Architect and Owner valid Certificates of Insurance, Policies of Insurance and amendatory riders or endorsements to Contractor's insurance policies, all in form and substance satisfactory to the Owner. Failure of Construction Manager/Architect and/or Owner to demand Certificates of insurance and/or Policies shall not constitute a waiver of the Contractor's responsibility to procure insurance. Nor shall review and/or approval by either the Owner or Architect in any way relieve Contractor of its responsibility for furnishing sufficient amounts and coverages of insurance. Said endorsements or amendatory riders shall indicate that as respects said additional insured, there shall be severability of interest under said insurance policies.

Add the following new Section 11.1.4.1 to Section 11.1.4:

11.1.4.1 If the Contractor fails to purchase or maintain or require to be purchased and maintained the liability insurance required under subparagraph 11.1.1, the Owner may (but shall not be obligated to) purchase such insurance on the Contractor's behalf and shall be entitled to be repaid for any premiums paid thereof by the Contractor in the manner set forth in paragraph 2.4.

11.3. PROPERTY INSURANCE: Add the following subparagraphs:

"11.3.1.7 The prompt repair or reconstruction of the Work as a result of any loss shall be the Contractor's responsibility. etc. (a paragraph of wording)

11.3.9 The third sentence of this clause shall be deleted for the AIA A201.

11.3.10 This paragraph shall be deleted. The paragraph shall read as follows:
"The Owner shall have the power to adjust and settle a loss with insurers."

11.4 PERFORMANCE BOND AND PAYMENT BOND - Add the following subparagraph:

"11.4.1.1 The Contractor shall provide and pay for a Performance Bond and a Payment bond in the full amount of the contract. The surety of the bond shall be satisfactory to the owner and shall be provided on the forms provided in the project manual."

11.4.3 The bonds shall include the provisions that the surety will fully reimburse and repay the Owner all costs, damages, attorney fees, engineer's fees, and other expenses which the Owner may incur in making good any default by the Contractor, including any default base upon failure of the Contractor to furnish maintenance, repairs or replacements for any period of time after the work is completed, as provided for in the contract documents."

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK (No modifications to this Article.)

ARTICLE 13: MISCELLANEOUS PROVISIONS

Add the following provisions:

13.8. EQUAL EMPLOYMENT OPPORTUNITY

“13.8.1. This contract is conditional upon the requirement that the supplier or Contractor of services or the Contractor and his subcontractors and all labor organizations furnishing skilled, unskilled, and craft personnel who may perform such labor or services, as the case may be, shall not commit an unfair employment practice in this state as defined in the fair Employment Practices Act contained in Illinois Revised Statutes 1975, Chapter 48, Section 851-867 inclusive, including any subsequent revisions.”

13.9 PREVAILING WAGES

“13.9.1 The Contractor and all of his subcontractors shall pay to any laborers, workers and mechanics, who are employed in actual construction work on the site of the construction project, not less than the prevailing rate of wages as determined by the Illinois Department of Labor for Kane County.

“13.9.2. A copy of a schedule of wages is attached hereto, and is further available from Illinois Department of Labor. The Contractor shall verify that all wages paid are not less than the amounts shown on the current (applicable) schedule of rates as issued by the State of Illinois Department of Labor.”

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.4.3 If this Agreement is terminated due to the County's substantial failure to perform, the Contractor shall be paid for labor and expenses incurred to date as provided in Section 5, subject to set off for any damages, losses or claims against the County resulting from or relating to Contractor's performance or failure to perform under this agreement.

In the event of termination by the County upon notice and without cause, upon completion of any phase of the Basic Services, fees due the Contractor for services rendered through such phase shall constitute total payment for services. In the event of such termination by the County during any phase of the Basic Services, the Contractor will be paid for services rendered during the phase on the basis of the proportion of work completed on the phase as of the date of termination to the total work required for that phase. In the event of any such termination, the Contractor also will be reimbursed for the charges of independent professional associates and Contractors employed by the Contractor to render Basic Services, and paid for all unpaid Additional Services and Reimbursable Expenses not in dispute.

Reimbursable expenses mean the actual expenses incurred by the Contractor or the Contractor's independent professional associates or Contractors, directly or indirectly in connection with the Project.

ARTICLE 15: CLAIMS AND DISPUTES

15.3 Mediation is excluded as a method of binding dispute resolution.

15.4 ARBITRATION (Substitute the following):

“15.4.1 Arbitration is excluded as a method of binding dispute resolution.”

END OF SECTION 005000

SECTION 011000 – WORK SCOPE FOR ALL CONTRACTORS

PART 1.0 INTRODUCTION

1.1 GENERAL:

Requirements outlined in this section are applicable to all Bid Packages issued for this project. All contractors are required to thoroughly review this section in conjunction with the project documents listed in section 011000.00 and incorporate this composite body of information along with design intent, implied and inferred information and industry standards to provide a complete, useable facility as detailed below.

1.2 DEFINITIONS

The following definitions apply to terms and titles given throughout the project documents:

- OWNER – Refers to Kendall County along with representatives and agents
- ARCHITECT – Refers to Cordogan Clark & Associates along with respective engineers and sub-consultants.
- CM (Construction Manager) – Refers to Cordogan Clark Consulting Services, Inc.(CCCS) along with its agents.
- GENERAL TRADES CONTRACTOR – Refers to the General Trades Contractor with its respective subcontractors and self-performing tradesmen.
- CONTRACTOR – The term contractor used throughout the specifications gives general reference to either Prime Contractors, Subcontractors or both depending on the given context as determined by the CM. Where this term is not defined by its context, it shall be interpreted to mean all contractors regardless of contractual relationships. Furthermore, the term “Contractor” indicated within the AIA A-101 Agreement and A-201 General Conditions refers specifically to the Prime Contractors.
- PRIME CONTRACTOR – Refers to any contractor with or without subcontractors holding a contract with the OWNER or CCCS acting as the Owner’s Agent as defined above. Each Prime Contractor will hold one Prime Contract.
- SUBCONTRACTOR – Refers to any company working under a contract agreement with the Prime Contractor.
- SUB-SUBCONTRACTOR – Refers to any company working under a contract to a Subcontractor.
- PRIME AGREEMENT – Shall be considered the same as Exhibits C and D (AIA A-101 and A-201 respectively) along with Supplementary General Conditions per Specification Section 000500.
- WORK SCOPES – Refers to all documents contained within the 011000-series specifications.
- PROJECT DOCUMENTS – Refers to the entire body of documents referenced herein along with subsequent documentation of a similar nature.
- THE WORK – All of the specific tasks assigned to each Prime Contract.

PART 2.0 PROJECT DOCUMENTS

2.1 PLANS

Include all work related to each Prime Contract along with self-performed work and respective subcontracts as illustrated in the plans listed in specification section 0001000 TABLE OF CONTENTS.

2.2 OTHER PROJECT DOCUMENTS

Any other Addenda, Notification, Bulletin, or response issued by the Owner, CM, or Architect shall be treated a project document unless specifically noted by the aforementioned entities. Prime Contractors shall take these documents into account when preparing estimates and performing the work.

2.3 DELIVERY OF PROJECT DOCUMENTS

All project documents shall be supplied to the Prime Contractors in electronic format only. Prime contractors shall be responsible to prepare and distribute paper copies and electronic media to all tradesmen and subcontractors for purposes of bidding and construction.

2.4 DISCLAIMER

Definitive lists and specific information contained within this document shall not limit the Contractor's responsibility to perform the work as defined within the collective body of The Project Documents.

PART 3.0 SCOPE OF WORK

3.1 GENERAL PROVISIONS:

- a) Information given below universally applies to all sections within all Scope of Work documents.
- b) Tasks and responsibilities within each work scope are organized by category for convenience only. Contractors shall utilize this information as it applies to all aspects of their work regardless of placement within the scope documents.
- c) Each contractor is responsible to review the entire set of Project Documents to determine work required for their respective trades. Placement of information on drawings shall not alleviate each contractor from completing the Work in accordance with their Work Scopes.
- d) Each contractor is responsible to inspect the site prior to bidding the project and become familiar with all limitations and conditions that will affect the work in accordance with specification section 003000 Bid Instructions and elsewhere as referenced in the project documents.
- e) Refer to Supplementary General Conditions Specification section 005000 with regards to discrepancies in the contract documents.
- f) Each contractor shall provide all equipment, means, and methods needed to perform the work independent of other contractors including but not limited to all scaffolds, hoists, pumps, lifts, etc.

3.2 RESPONSIBILITIES:

Contractual responsibilities for this project are arranged as follows:

- a) **Kendall County, Illinois** as Owner for this project holds all contracts with the Architect, Consultants, and has entitled the Construction Manager (CCCS) as their Agent regarding the Prime Contracts execution and administration to the Prime Contractors for the project.
- b) **Cordogan Clark & Associates** along with their consultants and sub-consultants have been retained by the Owner as the Architect.
- c) **Cordogan Clark Consulting Services, Inc. (CCCS)** along with their consultants and sub-consultants have also been retained by the Owner as the Project **CM** (Construction Manager). As Construction Manager, CCCS Associates will represent the Owner's interests and have general oversight of the work throughout the construction period. As an agent of the Owner, CCCS will administer the Contracts with the Prime Contractors performing the work.
- d) **Prime Contractors** as defined by within each bid package. One Prime Contract per bid Package. Prime Contracts may consist of one or more trades and/or companies as required to perform The Work as defined for each Bid Package. Where more than one contractor is involved, a singular contractor shall be named as the primary contract holder. This contractor shall be deemed as the Prime Contractor. All other contractors involved with completing The Work within the same Bid Package shall be subcontractors or sub-subcontractors with respect to the Prime Contractor. This Prime Contractor must be able to singularly demonstrate the ability to meet all of the award criteria as outlined in Specification Section 003000 Instructions to Bidders. Prime contract shall be in the form indicated in Exhibits C and D along with Supplemental Conditions in Specification Section 005000.
- e) **Joint Ventures** – All joint venture companies seeking to perform The Work for an individual Bid Package must be pre-approved by the CM prior to submitting a bid. Preapproval shall be according to the same criteria established for approving all Prime Contractors as outlined in Specification Section 003000 Instructions to Bidders. Joint ventures must provide adequate documentation to prove their viability as a contracting company as well as a history of successful projects.
- f) **Award** – Each Bid Package as outlined above will be contracted as a singular Prime Contract and will not be subdivided. Individual companies may be awarded more than one Prime Contract provided they meet the necessary prequalification criteria.
- g) **Contract Form** - The Standard Form of the General Conditions of the Contract (Document No. A-201, 2017 Edition), issued by the American Institute of Architects as well as the Architect's Supplementary General Conditions bound herewith, are a part of this specification and the Contractor shall consult them in detail for the instructions pertaining to his work

Contractors shall raise specific questions regarding their roles and responsibilities during the bidding period. Owner and CM will not be responsible for any liabilities caused by the contractor's negligence to do so.

3.3 SCHEDULING AND PHASING:

- a) SCHEDULE DEVELOPMENT:

- i) A Project Master Schedule encompassing all activities of all trades, CM, and Owner shall be developed in conjunction with the Prime Contractors and shall be as generally illustrated in the Project Schedule included in the Bidding Documents. The Schedule will be updated as required by the Prime Contractors for their associated work as require on a monthly basis and shall be coordinated with the CM to update the Master Schedule accordingly. The schedule updates shall be in accordance with specification section 013200 Construction Progress Documentation.
 - ii) All contractors will be required to collaborate with the CM in developing and maintaining the Master Schedule. Contractors will provide schedule information in a timely manner so that the work of other trades can progress without delay or interruption.
 - iii) In addition to the Master Schedule, Prime contractors will also be responsible to develop and maintain any supplemental schedules as needed to perform The Work.
 - iv) Schedules shall be issued to the CM in both paper copy and electronic media by the Prime Contractors for use by the CM in maintaining the Master Schedule. Electronic media schedules shall be prepared in Microsoft Project (latest edition) format or other media as approved by the CM.
- b) SCHEDULE EXECUTION
- i) All Contractors shall refer to Milestone Schedule contained within Specification Section 003000 Instructions to Bidders.
 - ii) Neither the Construction Manager nor the Owner is responsible for assumptions made by the Contractor. The Construction Manager has the right to act on behalf of the owner to adjust and / or change the start or completion dates as required.
 - iii) All contractors are required to include expediting of all submittals, material orders and fabrication along with providing multiple crews, increased manpower, premium time/shift time work, and multiple mobilizations as required to complete the project within the specified time period.
 - iv) Contractors may proceed at their own risk to prepare shop drawings and submittals prior to issuance of notice to proceed and execution of contracts as a means of expediting the Work.
 - v) Expedited schedule shall in no way relieve the Prime Contractors from performing the work within the standard of quality and performance outlined within the Project Manual, Drawings, and other Project Documents.
 - vi) Contractor shall include all material and labor escalation costs necessary to complete the Work in accordance with the project schedule.
 - vii) Contractors shall also take into account that certain portions of the work may be sequenced differently than what they would expect for a project of this type. Contractors may, therefore, be required to work in completed areas and around completed installations which may limit their access to the Work. Contractors shall examine the milestone schedules referenced in this document and include provisions in their bid for out-of-sequence work.
 - viii) Specific schedule requirements of this project are as follows:

(1) See schedule included in the Bidding Documents.

c) PHASING:

i) Project may be completed in multiple phases as indicated in the schedule.

3.4 PROJECT MANAGEMENT

a) Supervision

- i) Each Prime contractor shall have a designated supervisor or foreman who will represent the Prime Contractor on-site while all work is being performed.
- ii) Each Prime Contractor's supervisor shall coordinate their responsibility to insure that the work progresses according to the project schedule and is completed in conformance to the Project Documents.

b) Meetings

- i) All contractors shall be responsible to attend a minimum of (1) weekly coordination meeting with the CM.
- ii) Contractors may also be responsible to attend other meetings - both scheduled and impromptu – as required by the CM.
- iii) Contractors shall be properly represented at all meetings. This includes having at least one responsible party with the capacity to make decisions on behalf of the represented company in attendance.

c) Coordination

- i) Each contractor shall be held responsible to provide their own coordination of duties with other contractors on the job. Independent duties defined within the Work Scopes shall not relieve contractors from providing coordination.
- ii) Coordination efforts among the contractors shall facilitate the necessary sequencing, fitting, quality, and scope of the Work to produce a complete and functional facility as outlined in the Project Documents.

d) Layout

- i) Each contractor shall be responsible to provide the necessary layout and field measurements required to complete their work.
- ii) Contractors are encouraged to not rely solely upon the layout of other trades for the placement of their own installations.
- iii) All dimensions showed or implied on the drawings are to be field verified by each contractor performing the work.

e) **Site Security**

- i) Security Guard will NOT be provided by the Owner
- ii) Each contractor is responsible to secure their own materials and equipment until permanently installed.

3.5 SHOP DRAWINGS MOCK-UPS, AND SUBMITTALS

a) **Shop Drawings**

- i) Refer to specification section 013300 and individual trade specifications for specific requirements regarding Shop Drawings.
- ii) Architect shall supply Electronic Backgrounds free of charge at contractor's request provided that the necessary waivers are signed per the subcontract documents.
- iii) Each contractor responsible for producing shop drawings required to complete The Work as defined by respective Work Scopes.
- iv) MEP coordination drawings will be provided by the HVAC Contractor. All trades are expected to participate and cooperate with the HVAC contractor in preparing this coordination document.
- v) Shop drawings shall be submitted in PDF format via the Project Management internet based software system used on the Project.

- b) **Mock-ups** - In addition to the requirements of the project documents, contractors shall provide in-situ mock-ups of permanent installations as requested by the Owner at no cost. Refer to individual specification sections for specific mock-up requirements for each trade to be included in each respective work scope.

c) **Submittals**

- i) Refer to specification section 013300 and individual trade specifications for requirements regarding Submittals
- ii) Each contractor is responsible for producing all submittals as required to complete the Work as defined by respective Work Scopes in PDF format via the Project Management internet based software system used on the Project.

3.6 SAFETY

- a) The safety of the client, its occupants, users and the general public are of the utmost importance. Special and extraordinary performance requirements shall be required of each contractor, their subcontractors and suppliers to assure this safety. In so far as possible, It is the desire of the Owner, Architect, and Construction Manager to segregate the construction activities form the Owner and their users and to minimize the disruption of activities. The Owner reserves the right to immediately

terminate, implement or correct any deficiency of the following noted requirements and deduct the cost of this work from any monies due to each Contractor.

- b) As stated in the Cordogan Clark Contractor Policy: “CCCS. [and the Owner] will not place itself in the role of evaluating the Contractors Safety Program for compliance with government or agency regulations. Neither will CCCS monitor Contractor’s performance on the work site for compliance with its own manual.” (bracketed information added)
- c) Contractors shall refer and adhere to Specification Section 005000 Supplementary General Conditions for specific requirements regarding safety.
- d) Each contractor is responsible to provide, monitor and enforce their own compliant and effective safety program.
- e) Each contractor shall provide a site-specific safety plan to the CM for the purposes of coordination only.

3.7 SITE LOGISTICS AND MOBILIZATION:

a) STAGING:

- i) Contractors shall place materials and equipment on site in a manner and at locations that do not impede the progress of the work. CM may require contractors to relocate materials and equipment staged on-site if needed to maintain schedules and provide a functioning work environment for the other trades.
- ii) Each contractor is responsible to provide safe and efficient traffic control for all of their own and subcontracted manpower, deliveries and vehicles entering and leaving the site. Each contractor shall also provide all safety measures required in the contract documents related to traffic control including flagmen and barricades except as specifically noted within other work scopes.

b) ACCESS

- i) Each contractor will be responsible to provide their own access to the project area including scaffolds and lifts unless specifically noted otherwise in the project documents.
- ii) Each contractor shall be responsible to maintain all common access points, drives and areas to be free of debris and useable by all workmen and equipment on the site.
- iii) Unless noted otherwise, Contractors may use existing driveways to access the staging areas and building entries to the project site(s). Refer to any site logistics plans in the Bidding Documents.
- iv) Unless noted otherwise, Contractors may utilize multiple means of conveying materials in and out of the project area with permission from the CM including:
 - (1) Exterior Windows – Remove and reinstall exterior windows as needed to convey materials into each project area. Provide protection of exterior and window finishes while conveying

materials. Insure that removal and replacement of windows does not void any warranties or prevent window from functioning properly.

(2) Scheduled Openings – Scheduled openings in the building exterior walls may also be used provided that building enclosure can be achieved in a timely fashion.

(3) Exterior grade – Contractors may approach the building exterior from the existing grade provided that they furnish the proper protection of pavements, landscaping, and other finished installations provided there is NO disruption to existing building access or egress. Any damages shall be repaired and finished areas restored to their original state by the contractor performing the work.

c) STORAGE AND HANDLING OF MATERIALS:

i) Each contractor shall be individually responsible to protect materials utilized in completing the Work until they are permanently installed.

ii) Delivery of materials

(1) All hoisting, lifting, cranes and other methods of material conveyance shall be provided by the individual contractor performing the work.

(2) Methods of material conveyance shall be coordinated with the CM.

iii) Provide any temporary protective planking and / or structural shoring as may be required for any areas, which are intended for erection, sorting, or accepting delivery of materials.

iv) Use of elevators will NOT be permitted, unless noted otherwise.

v) Storage of materials:

(1) Store materials on-site at the direction of the CM.

(2) Protect all materials from the elements, theft and breakage.

(3) Storage or staging of material and equipment is prohibited outside of the project area.

vi) Handling of Materials provided by others

(1) Each contractor shall be responsible to schedule the delivery of materials provided by others and installed under their contract.

(2) These materials shall be received, unloaded, inventoried, staged, and protected by the installing contractor until they are permanently installed.

(3) Installing contractor will be held responsible for shortages of material not inventoried and documented upon delivery.

d) TEMPORARY CONSTRUCTION

i) General:

- (1) Information contained in this work scope shall be considered supplemental to specific requirements noted within Specification Sections 005000 and 015000 regarding temporary construction.
- (2) Temporary construction shall remain in-place only as long as needed to complete The Work.
- (3) Contractors may be required to remove and reinstall temporary construction multiple times as needed without additional compensation in order to facilitate the progress of the work and to allow the Owner to utilize the facility.

ii) Jobsite Offices

- (1) Each Prime Contractor will be responsible to make provisions for their jobsite office as coordinated and allowed by the CM.
- (2) Phone, Fax, Computer lines and any other utilities serving these offices shall be the responsibility of each Prime Contractor.
- (3) Jobsite offices may not necessarily be adjacent to the project area(s). Each Prime Contractor shall provide the necessary measures to insure safe passage of materials, equipment, and manpower between the Jobsite Office and the Project Area.
- (4) All other necessary Jobsite Office appointments, equipment, services, expendable equipment, and staff shall be provided by each Prime Contractor
- (5) Return Jobsite Office area to its original or better condition when the Work is completed.

iii) Utilities within the project area (other than the Jobsite Office)

- (1) Lights / Power – Utility consumption costs will be paid for by the Owner – each contractor shall use temporary or permanent circuits, lighting, receptacles and panels as provided by the site electrician. Each contractor shall provide additional power cabling, generators, temporary lights and other measures where existing building systems are deficient.
- (2) Water-Utility consumption costs will be paid for by the Owner. Extension of water lines to work sites, hoses, vacuum breakers, and other devices and equipment will be provided by each contractor as needed to facilitate the Work.
- (3) Drinking Water – Each Contractor will pay for drinking water used from drinking fountains which he has made accessible to the tradesmen. All other drinking water will be provided by each Prime Contractor.

iv) Sanitary Facilities

- (1) The Owner will NOT allow use of permanent toilet rooms for workers on the jobsite, unless noted otherwise.
- (2) Temporary toilets for the project as required by the designated Prime Contractor or CM.

v) Barricades and Enclosures

- (1) Each contractor shall be required to provide barricades and enclosures as needed to complete their work and maintain weathertightness and security of the building
 - (2) All work outside the construction fence i.e., Site utilities and paving shall be enclosed with a temporary plastic orange safety fence (or approved equal) provided by the contractor performing the Work.
- vi) Temporary Signage – Project sign shall be purchased and paid for by the CM along with all other on-site way-finding and convenience signage and regulatory signage.

e) **WORK IN AND ADJACENT TO OCCUPIED AREAS**

- i) Contractor is hereby made aware that adjacent areas are currently occupied. All contractors shall exercise extreme caution when working adjacent to properties and intervening utility easements. Contractors shall not be allowed to enter adjacent properties or related utility easements without express written permission from the CM.
- ii) Public Right of Way, parking and drives shall be maintained and kept clear of all obstructions by all contractors at all times.
- iii) Each contractor shall maintain all fire and emergency exits and access points throughout the building and the site as required by the local Fire Marshall.

3.8 PROVISIONS FOR FIELD WORK

a) **Clean-up**

- i) Clean-up shall be performed by all contractors according to Specification Section 005000 Supplementary Conditions, 017300 Execution Requirements and other references in the project documents.
- ii) In the event that trade contractors are not providing clean-up in a timely fashion, CM reserves the right to provide clean-up as needed to maintain progress of the Work and a safe and efficient work environment. CM will charge the responsible contractors with the appropriate costs related to clean-up performed on their behalf.
- iii) Clean-up by all contractors extends to maintaining of all streets, parking areas and public right-of-ways along with required street sweeping.
- iv) Except as noted herein, dumpsters required for debris removal will be provided and paid for by the CM. Contractors shall show consideration to the CM by utilizing the most efficient means possible to fill and replace dumpsters.
- v) In addition to requirements of Specification Section 017419, all contractors shall comply with Owner's recycling plan. Contractors will be required to separate debris into respective recycling bins and provide documentation per the Owner's direction.
- vi) Final Cleaning shall be provided by the CM.

b) **Conduct**

- i) All contractors shall conduct themselves in an appropriate manner as defined by the CM.
- ii) Excessive use of obscene, offensive, and inappropriate language, gestures, or other actions is prohibited.
- iii) Distribution or display of suggestive, inappropriate, or otherwise offensive materials will not be permitted.
- iv) Tradesmen who do not comply to the above measures of conduct will be required to leave the jobsite for a period of time specified by the CM

3.9 TESTING, PERMITS AND INSPECTIONS

a) Testing

- i) Testing will be paid for by the owner and scheduled / coordinated by each contractor performing the work.
- ii) Each contractor shall be responsible to fully cooperate with all testing agencies and shall provide all necessary field labor, equipment, and materials necessary to complete each test.
- iii) Provide a minimum 24 hr. notice of all scheduled tests to the CM and respective contractors involved.

b) Inspections:

- i) Each contractor is responsible to arrange for their own inspections as required
- ii) Each contractor to coordinate these inspections with the CM
- iii) Each contractor will pay for inspection and reinspection fees (over and above those covered under the General Building Permit).
- iv) Each contractor will provide documentation and tests required by permit inspectors to approve the work.
- v) Provide a minimum 24 hr. notice of all scheduled inspections to the CM and respective contractors involved.

c) Permits:

- i) All permits required by any Governing Authorities shall be obtained by the CM.
- ii) Any additional or special permits required shall be obtained and paid for by each Contractor requiring the permit.
- iii) Contractors may be required to assist the CM and Owner in the supply and preparation of permit submittals.

- iv) Special fees required for the inspection of Plumbing, Heating, Ventilating, and Electrical installations will be paid by the respective contractor for those branches of work.
- v) Each contractor will pay for permit fees (over and above those covered under the General Building permit).

3.10 PROJECT CLOSEOUT

- a) Refer to Specification Sections 005000 017700, 017823, 017839, and 017900 and other project documents for specific information regarding Project Closeout.

3.11 MISCELLANEOUS PROVISIONS

- a) All work shall comply with proper trade jurisdictions. Contractors shall provide composite crews if necessary to complete the work.
- b) Each contractor shall be responsible for firesafing their own penetrations passing through fire rated assemblies, structures and walls.
- c) Contractors shall verify elevations, overhead spaces, and shared spaces for scope of work with respect to other Contractors' Work Scopes. Contractors shall notify Architect during bidding of any discrepancies or conflicts. Contractor shall include cost to reroute or revise scope of work as needed to accommodate the installations of other contractors.

Kendall County Probation Office Buildout

807 West John Street

Yorkville IL 60560

Job#: 22-1103



BP#01:General Trades		< Company >	
		<Contact >	
		< Phone# >	
		< Email >	
Scope of Work - General		Inc.: Y / N	Cost
Project Information			
1	Project Address: 817 West John Street, Yorkville, IL 60560		
2	Insurance: Include General Liability Insurance		
3	Exclude All Sales Taxes		
4	Bid valid through/for: 90 days		
5	Start Date: 04/01/24 Substantial Completion Date: 05/06/24		
6	Must be in full compliance regarding prevailing wage.		
7	Must Provide a Payment and Proformance Bond		
Safety and Quality Control			
8	Provide Job Site Specific Safety and Quality Plan relating to scope of work for review and approval by Cordogan Clark prior to mobilization. Subcontractor is to submit within five (5) days of contact award.		
9	Contractor shall, at own expense, comply with all OSHA, local, state and specified safety, health and hazard requirements not only for their employees, but for all who will or may be exposed.		
10	Provide onsite quality control and competent safety supervisor.		
11	Submit accident reports to Cordogan Clark within 24 hours of any accident onsite and provide safety meeting reports on a weekly basis for Cordogan Clark to review.		
12	Prior to the commencement of work, provide MSDS sheets for all material used on the job. Both hard copy and digital. Subcontractor will maintain a current log at the job site and provide updated copies to Cordogan Clark as changes or additions are made.		
13	To promote safety awareness on our jobsites, Subcontractor will be asked to participate in a Site-Wide Safety Walk-Through, Weekly Safety Status Meetings.		
14	Insurance requirements necessary to complete installations have been reviewed and are included in Base Bid. A Certificate of Insurance must be issued to Cordogan Clark prior to the commencement of any work at the site.		
15	Required Paperwork a) Weekly toolbox safety talks are required b) Time and Material tickets signed daily by Cordogan Clark Superintendent for all extras c) MSDS and Hazard Communication Program on record in Cordogan Clark Superintendent d) Job Specific Safety & Quality Plan e) Up-to-Date Certificate of Insurance f) Competent Person, named on Safety Plan, with OSHA 10 Hour Training g) Report all injuries and submit an accident report the day of the incident h) Crane inspection report daily, if applicable i) Pretask Plan Review J) Project phase schedule including submittals, lead time items, and manpower.		
16	The subcontractor's PM, superintendent, and project foreman that will be working on the project for the duration, will participation in Preinstallation Meetings, and Weekly Construction Progress and Safety meetings with Cordogan Clark. Attendance is mandatory for at least one company representative and required for coordinating the work with other trades. Other meetings, as directed by Construction Manager, may be required.		
17	Subcontractor will be involved with Cordogan Clark's Quality Reviews and Construction Progress reviews.		
18	Subcontractor will review and take action on Quality issues brought up by Cordogan Clark, Owner, Architect, and Engineer to comply with the Contract Documents and proper installation. These will be addressed in a timely manner.		
19	Subcontractor will participate and complete an Above Ceiling, Below Ceiling and Pre-Punch List before formal punch list review is completed by the Engineer/Architect.		
20	Pre-Punch List, as well as Formal Punch List work, is included in Base Bid.		
General Scope Items			
21	The Cordogan Clark Standard Subcontract Agreement has been reviewed and will be accepted in it entirety without any changes upon award.		

Kendall County Probation Office Buildout

807 West John Street

Yorkville IL 60560

Job#: 22-1103



BP#01:General Trades		< Company >	
		<Contact >	
		< Phone# >	
		< Email >	
Scope of Work - General		Inc.: Y / N	Cost
22	Subcontractor to provide minimum prevailing wage labor to complete scope of work with corresponding certified payroll.		
23	Subcontractor to include full time supervision for the entirety of scope of work		
24	Subcontractor responsible to complete all the necessary drawings, permit application forms as required by the City or Village		
25	Subcontractor to provide all licenses, business and bond fees as required for their scope of work as required by the City or Village		
26	All plan review and inspection fees for your work will be included.		
27	Subcontractor is responsible for scheduling any and all testing required and is included in base bid. Additionally, it is the responsible of the subcontractor to schedule and coordinate all required inspections associated with their scope of work. Contractor to arrange, schedule, and be present for all necessary inspections pertaining to their trade.		
28	Subcontractor will designate a company representative who will attend all coordination meetings, and prepare fully coordinated shop drawings. All cost for engineering, AutoCAD drafting and plan reproduction will be included in base bid.		
29	All Drawings & As-Builts to be based off of the latest version of AutoCAD or Revit		
30	Each contractor has the responsibility to immediately examine the contract documents for errors, inconsistencies or omissions. Any such errors, inconsistencies or omissions shall immediately be brought to the attention of Cordogan Clark prior to contract being issued.		
31	Each subcontractor has the responsibility to field measure and verify each location for installed work before ordering their material or equipment. If the subcontractor does not field measure for their work, there shall not be any additional costs to Cordogan Clark or to the owner if the material or equipment installation does not fit or is not acceptable to the owner, architect, or contractor.		
32	Subcontractor has reviewed the schedules and associated cut sheets and has included all required costs in this bid for receiving, handling, rough-in, and installation of the equipment that pertains to your trade insuring that they will be on-site within schedule.		
33	Submittal Log must be submitted within 5 business days of subcontract award for Cordogan Clark review. Reference your trade item specific specification sections along with Section 013300. Upon approval of the submittal log, an updated log must be sent to Cordogan Clark every Monday until all submittals are approved. Failure to submit an updated log will result in that month's payment being rejected. Submittal log must include submittal due date, fabrication time, and delivery to site.		
34	Contractor must use "Autodesk Build" for documentation distribution on this project.		
35	Testing & Inspection Log must be submitted within 10 business days of subcontract award for Cordogan Clark review. Reference your trade item specific specifications for requirements. Upon approval of the testing & inspection log, an updated log must be submitted to Cordogan Clark with each monthly pay application. Failure to submit an updated log will result in that month's payment being rejected.		
36	A detailed schedule of values must be submitted within 10 business days of contractor award on an AIA Document G703. Schedule of values breakdown must be approved by Cordogan Clark's Project Manager prior to first draw acceptance.		
37	Subcontract Affidavit Requirements must be fulfilled for monthly pay applications.		
38	All second tier subcontractors must be identified within 10 days of contractor award. Lien waivers must be provided for each payment request, otherwise this will result in monthly payment being rejected.		
39	Subcontractor will complete the Cordogan Clark labor rate sheet for the current year prior to a contract being awarded to your company		
40	Labor rate escalation will be included with your bid for the duration of the job		
41	Change Order Analysis cover sheet will be utilized & submitted by the Subcontractor for all change orders and pricing requests. Change orders must include material and labor take-off breakdowns that can be easily understood by Cordogan Clark's PM and the owner. Failure to provide this detail will result in Cordogan Clark rejecting the change order request.		

Kendall County Probation Office Buildout

807 West John Street

Yorkville IL 60560

Job#: 22-1103



BP#01:General Trades		< Company >	
		<Contact >	
		< Phone# >	
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Scope of Work - General		Inc.: Y / N	Cost
42	Pending Change Request Log must be submitted with each monthly pay application indicating outstanding CO's and their value to Cordogan Clark's PM. Failure to submit this log will result in that month's payment being rejected.		
43	Submit all as-builts and close-out documents prior to substantial completion date		
44	Supply O&M manuals and owner training session as required.		
45	Subcontractor is responsible for attending a pre-bid walk prior to submitting bid? No extras or change orders will be given for not incorporating existing conditions and dimensions into your work. Any changes to existing conditions are to be included in your base bid.		
46	All Material Free On Board (FOB) to the job site		
47	Subcontractor's project foreman must have a smart phone and/or a tablet device with stand alone internet capabilities, not reliant on Wi-Fi. The smart phone and tablet must be in the foreman's possession at all times until project completion to assist in better communication between the field and office.		
48	Extreme caution is to be used at all times when working on a project site. Proper PPE must be worn.		
49	Subcontractors are only permitted to deliver the materials they can install in one weeks time unless noted otherwise or provisions are made and approved by the CM. All major deliveries are to be pre-coordinated with CM team.		
50	Subcontractor will be responsible for attending the following meetings: weekly project coordination meeting, project specific pretask plan.		
51	Mark up on change orders limited to amounts established in project specifications. Provide detailed backup with each change order request.		
52	Bidder acknowledges certain portions of the work will be completed in phases and/or require multiple mobilizations and agrees all costs have been included in base bid. Phasing per plans and schedule.		
53	Close out documents must be submitted and approved prior to submission of 50% subcontractor billing.		
54	Subcontractor and employees will not smoke within building and only in designated areas.		
55	Provide temporary protection of own work and safety requirements.		
56	Provide all submittals in PDF format. All submittals will be submitted to Cordogan Clark no later than 30 calendar days from issuance of contract.		
57	Subcontractor is aware of limited site availability for storage, lifts, trucks, etc. All costs associated with site conditions pertaining to your phase are included in this subcontract. Site logistics must be coordinated and approved by the Construction Manager.		
58	All survey and layout associated with this scope of work has been considered and is included in the base bid. Layout work to proceed as required to maintain the progress of the job in accordance with the contractor schedule. Control points and benchmarks to be provided/established by Cordogan Clark.		
59	Streets, sidewalks, and roadways will be kept free of debris and waste material resulting from subcontractor's operations. Periodic street cleaning will be required. All required flagmen, safety, barricade, temporary enclosures, etc. required for proper completion of this subcontractor's work is included in this subcontract.		
60	Subcontractors will be required to provide scanning, coring, saw cutting, and disposal for their own work. Holes not utilized must be filled in by the subcontractor with concrete or UL approved fire stopping system. Shop drawings for the Structural Engineer's review will be required prior to cutting and coring.		
61	When penetrating or removing floor and roof decks or wall penetrations, provide a catch deck or an additional worker to prevent material from falling and injuring others.		
62	Subcontractor will furnish, install, certify, and label fire caulking & fire stopping systems for penetrations installed by this subcontractor, per local code and/or AHJ.		
63	Subcontractor to provide all daily clean up of all construction debris generated from their scope of work, their workmen, or site conditions. All clean up associated with this scope of work will be brought to a gondola/dumpster provided by Cordogan Clark, on a daily basis.		

Kendall County Probation Office Buildout

807 West John Street

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BP#01:General Trades		< Company >	
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Scope of Work - General		Inc.: Y / N	Cost
64	Cordogan Clark will be implementing a "NOTHING HITS THE FLOOR" program on this project, which includes the following: 1. Cordogan Clark Superintendent work with subcontractors to minimize staging of materials on site. 2. Any materials staged on site must be on a mobile platform or carts. Any material staged on site without a mobile platform or cart will be removed at the subcontractors expense. 3. All trades are required to put scrap and debris directly into a portable trash container. Laborers will empty the trash containers daily. (This pertains to general refuse, demolition material is the subcontractors responsibility) 4. Any debris found on the floor in subcontractors work area, at the end of the day, will be photographed and picked up at the subcontractors expense.		
65	Subcontractor shall support his work independently from structure above and not from other trades' work.		
66	Contractor to schedule and be present for all necessary inspections.		
67	Subcontractor is responsible to coordinate the installation of his work with other trades.		
68	Provide labor rate sheet with overtime rates included. Davis Bacon minimum requirements.		
69	<u>NO</u> substitutions of materials, manufacturers, or specified installation methods are acceptable unless prior approved. Approval must be agreed to prior to submittal issuance. Confirm any substitutions from project drawings or specifications that have been made.		
70	Conflict between drawings and specifications, whichever is greater cost takes priority.		
71	Warranties as required per project specifications. Warranty to start from the date of project substantial completion as established by the Owner, Architect, and Construction Manager.		
72	Provide all inspections, licenses, bonds, tests, fees, permits, and procurement required by the contract documents and governing authorities of this work.		
73	Subcontractor to include overtime or standby work that may be required for inspections and to maintain schedule.		
74	Subcontractor to waterproof, fire safe, and seal all owned penetrations in floor, wall, or ceiling.		
75	Subcontractor understands and accepts that any interaction (both verbal and nonverbal) with the residents, pedestrians, etc. which is deemed inappropriate, offensive, lewd, vulgar, etc. is unacceptable. The occurrence of such interaction will result in the immediate dismissal of the offending party with this dismissal being at the sole discretion of the Construction Manager.		
76	No alcohol, illegal drugs, or firearms allowed on site or in employee vehicles.		
77	All unloading, rigging, distribution, plant and equipment, scaffolding, staging, temporary protection, small tools, and everything necessary to perform the work is accounted for in subcontract.		
78	For items under this contract, provide touch-up and/or replacement of damaged materials prior to owner acceptance of areas, if damaged materials are caused by this subcontractor. Subcontractor agrees to repair any utilities, sidewalks, park ways, medians, streets, etc., that are damaged due to this subcontractor's negligence.		
79	Subcontractor is responsible for protecting all construction materials and equipment stored at the site or off the site from weather or any other conditions. Any damaged or broken work in place prior to final acceptance shall be repaired and replaced by the subcontractor, if damaged materials are caused by this subcontractor. Subcontractor will protect existing work in place while performing his work. Any work performed by others that is damaged by this subcontractor or his agents shall be the responsibility of the subcontractor to replace at no additional cost to the owner.		
80	Material deliveries must be scheduled and coordinated with the Construction Manager. Forty Eight (48) hours notice prior to all deliveries is required.		
81	Opening and closing of jobsite gates immediately before and after all incoming and outgoing truck traffic by this subcontractor.		
82	Overhead and fee is not allowed on premium work performed directly for the Construction Manager.		
83	Overhead and fee is not allowed on work performed directly for the Construction Manager as an internal change order.		

Kendall County Probation Office Buildout

807 West John Street

Yorkville IL 60560

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Scope of Work - General		Inc.: Y / N	Cost
84	Understanding that the jobsite is not a perfect situation and minor adjustments may be required in order to complete the work at no additional cost.		
85	All contractors are responsible for and required to secure and protect their work tools, equipment, and materials on a daily basis.		
86	Extra work tickets shall be submitted to the Construction Manager's superintendent for signed approval within no less than eighteen (18) hours of the conclusion of said work which include but are not limited to area(s) worked in, nature of work performed, and the names of each of the workers performing said work. Change order requests for extra work tickets not signed by the Construction Manager's superintendent will not be accepted. Daily hourly tickets must be verified by the Construction Manager each day.		
87	The subcontractor shall examine the substrate prior to installation and shall not proceed if the substrate is not to the established requirements. Proceeding with work implied acceptance of the substrate and the subcontractor will not be reimbursed for cost and/or time associated with removing work installed on substrates unacceptable to the subcontractor.		
88	Use specified products and manufacturers, include delivery charges		
89	Subcontractor to provide all traffic control and safety precautions for own work.		
90	General Trades contractor is responsible to provide and maintain porta-johns, dumpsters, and site fencing on site. General Trades contractor is also responsible for temporary heat, if required.		
91	Subcontractor to handle all material, equipment, and onsite storage and coordinate with Construction Manager regarding site logistics.		
Schedule Requirements			
92	Project Mile Stone Dates have been reviewed. All labor and material escalation considerations have been included as part of the base bid noted above.		
93	Your Site Logistics Plan will be reviewed with the CM and any special considerations shall be included in your bid.		
94	Mobilizations and phasing as required by the project schedule are included in the base bid.		
95	Subcontractor will be responsible for the detailed scheduling and phasing of its work, including provisions for adequate manpower, as required by the overall project schedule, coordination with preceding or subsequent trades, and other field conditions, unless otherwise directed by the Contractor. The effects of improper coordination by this Subcontractor with the other trades shall not be a cause for delay or loss of productivity claims by this Subcontractor.		
95	Subcontractor will guarantee the man power to complete the job per Cordogan Clark's schedule, or work overtime if you fall behind the schedule at no additional cost to Cordogan Clark or Owner		
96	Project Milestone Dates: -Award: February 29th, 2024 -Start Construction: April 1st, 2024 -Substantial Completion: May 6th, 2024		
Scope of Work - Trade Specific		Inc.: Y / N	Cost
PLANS, SPECIFICATION AND BID DOCUMENTS			
97	Plans, Specifications and Bid Documents have been reviewed and included. Bid Set Dated 2-14-23		
98	"Provide" shall mean to "Furnish and Install" throughout this scope of work		
DEMOLITIONS SCOPE:			
99	Remove existing wall as required to accommodate new opening 1-A2.1		
100	Remove existing carpeting, wall base and protect for duration of new work, reinstall carpet when work is complete. Provide rubber transition strip along edge 1-A2.1		
101	Modify Existing Wall layout as required for new opening 2-A2.1		
102	Sawcut Existing Concrete Slab AND repour for New Plumbing. 1-A2.2		
103	Remove and salvage existing floor tile for reinstallation. 1-A2.2		
104	Remove wall finish, including but not limited to gyp. Bd, insulation rubber base and wood trim as required for new plumbing. Patch and Repaint to match existing 1-A2.2		

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Scope of Work - General		Inc.: Y / N	Cost
105	Cut and Patch exist. Floor slab for underground utility. Extend below exist. slab 3-A2.2		
106	Sand blast existing resinous epoxy floor for removal and rework 1-A1.01		
107	Subcontractor to verify routing of existing pipe in CMU wall 1-A1.01		
108	Remove mezzanine level including metal floor deck, finishes, walls, stair, railings, and framing.		
109	Return equipment to the owner as specified on 1-A1.01		
110	Demo all areas/equipment indicated		
111	Provide all demolitions as shown, including but not limited to walls, floors, ceilings, windows, cabinets, counter tops, electrical, lighting, HVAC, alarms, low voltage, pipes/conduits/utilities etc.		
112	Salvage mechanical diffusers/lighting/alarms/devices for re-use. Store as necessary.		
113	Provide protection of existing conditions to remain.		
114	Provide daily clean up		
115	Provide Dumpsters		
Carpentry/Finishes/Windows/Specialties/Etc.			
116	Frame new walls. All Framing to bottom of existing roof deck. Anchor as required.		
117	Relocate Existing Refridgerator provided by owner		
118	Provide new drywall, finishes, painting, caulking as required.		
119	Provide insulation as required.		
120	Provide structural framing.		
121	Provide new ACT 2x4 Ceilings when required.		
122	Salvage existing floor tile. Owner intends to utilize extra stock for damaged tiled, coordinate with owner.		
123	Patch/Repair/Paint existing walls as shown.		
124	Provide Typ. Slab-on-grade reinforcement.		
125	Provide new furnishings, cabinetry, counter tops, back/side splash, sink apron as shown.		
126	Provide (15" Long) Dowel at 12" O.C. Staggered adhere dowel 6" into exist. Slab		
127	Provide Gyp. Board Control Joints the full height og the partition,		
128	All penetrations within fire rated walls are to be sealed with fir caulking.		
129	All openings for interior doors shall be located 4" from adjacent wall unless dimensioned otherwise		
130	Verify all dimensions in the field.		
131	Install Carpet Tile selected by the owner		
132	Install blocking as required		
133	Install rubber base, transition strips, and corner guards selected by owner		
133	Install new doors, frames and hardware per schedule		
Plumbing			
134	Demolitions as required. See key notes for details.		
135	Install new sink faucet as specified.		
136	Install new sanitary line		
137	The contractor is responsible for all plumbing inspections scheduling and being present for inspections.		
138	Install new HW and CW		
139	Located valves above existing ACT for accessibility		
140	Provide and install plumbing and joints for new fixtures. See key notes for details		
141	Provide owner no fewer than 10 days in advance of water inruption		
142	Seal all penetrations with firestop at fire rated walls		
143	All new piping shall be flushed and thoughly disinfected		
144	Provide tags as necessary		
145	Provide copper hanges as necessary		
146	Fire Caulking required for penetrations through rated walls.		

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Scope of Work - General		Inc.: Y / N	Cost
147	Provide dielectric fittings in joining dissimilar piping		
148	Provide final drawings for submission for permits		
149	Final drawings to include necessary accessories. See key notes for details		
Fire Protection/Mechanical			
150	Modify existing fire protection system as required and install additional sprinkler heads to meet NFPA 13 and AHJ Requirements		
151	Provide a new vent as indicated. Provide necessary ductwork and accessories.		
100	Adjust existing fire protection heads as needed and specified.		
101	Fire Caulking required for penetrations through rated walls for GT trades.		
102	All devices must comply with ADA		
103	Provide hangers as necessary		
104	Test and confirm system complies with NFPA requirements		
General Conditions			
105	General Labor for daily cleaning as required		
106	Provide Dumpsters for the duration of the project - to be used by all trades		
107	All layout/Survey is included.		
108	Daily and Final Cleaning included		
109	As-Built Drawings of all work is included		
110	Close-out, Testing, Commissioning of all existing systems after work has completed is included.		
110	Coordinate all work with Kendall County and Cordogan Clark as required		
111	A total 10% markup on any change orders.		
Hoisting		Inc.: Y / N	Cost
Allowances		Inc.: Y / N	Cost
Alternates		Inc.: Y / N	Cost
Exclusions		Inc.: Y / N	Cost
Wage Rates (Attach or Fill out)		Inc.: Y / N	Cost
	SEE ATTACHED UNIT PRICING		

A/E/CM Signature

DATE

CONTRACTOR Signature

DATE

Kendall County Probation Office Buildout

807 West John Street

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BP#2: ELECTRICAL		< Enter Company >	
		< Enter Contact >	
		< Enter Phone# >	
		< Enter Email or Fax# >	
Scope of Work - General		Inc.: Y / N	Cost
Project Information			
1	Project Address: 807 West John Street, Yorkville, IL 60560		
2	Insurance: Include General Liability Insurance		
2	Exclude All Sales Taxes		
3	Bid valid through/for: 90 days		
3	Start Date: 04/01/24 Substantial Completion Date: 05/06/24		
4	Must be in full compliance regarding prevailing wage.		
Safety and Quality Control			
5	Provide Job Site Specific Safety and Quality Plan relating to scope of work for review and approval by Cordogan Clark prior to mobilization. Subcontractor is to submit within five (5) days of contact award.		
6	Contractor shall, at own expense, comply with all OSHA, local, state and specified safety, health and hazard requirements not only for their employees, but for all who will or may be exposed.		
7	Provide onsite quality control and competent safety supervisor.		
8	Submit accident reports to Cordogan Clark within 24 hours of any accident onsite and provide safety meeting reports on a weekly basis for Cordogan Clark to review.		
9	Prior to the commencement of work, provide MSDS sheets for all material used on the job. Both hard copy and digital. Subcontractor will maintain a current log at the job site and provide updated copies to Cordogan Clark as changes or additions are made.		
10	To promote safety awareness on our jobsites, Subcontractor will be asked to participate in a Site-Wide Safety Walk-Through, Weekly Safety Status Meetings.		
11	Insurance requirements necessary to complete installations have been reviewed and are included in Base Bid. A Certificate of Insurance must be issued to Cordogan Clark prior to the commencement of any work at the site.		
12	Required Paperwork a) Weekly toolbox safety talks are required b) Time and Material tickets signed daily by Cordogan Clark Superintendent for all extras c) MSDS and Hazard Communication Program on record in Cordogan Clark Superintendent d) Job Specific Safety & Quality Plan e) Up-to-Date Certificate of Insurance f) Competent Person, named on Safety Plan, with OSHA 10 Hour Training g) Report all injuries and submit an accident report the day of the incident h) Crane inspection report daily, if applicable i) Pretask Plan Review J) Project phase schedule including submittals, lead time items, and manpower.		
13	The subcontractor's PM, superintendent, and project foreman that will be working on the project for the duration, will participation in Preinstallation Meetings, and Weekly Construction Progress and Safety meetings with Cordogan Clark. Attendance is mandatory for at least one company representative and required for coordinating the work with other trades. Other meetings, as directed by Construction Manager, may be required.		
14	Subcontractor will be involved with Cordogan Clark's Quality Reviews and Construction Progress reviews.		
15	Subcontractor will review and take action on Quality issues brought up by Cordogan Clark, Owner, Architect, and Engineer to comply with the Contract Documents and proper installation. These will be addressed in a timely manner.		
16	Subcontractor will participate and complete an Above Ceiling, Below Ceiling and Pre-Punch List before formal punch list review is completed by the Engineer/Architect.		
17	Pre-Punch List, as well as Formal Punch List work, is included in Base Bid.		
Cordogan Clark Prequalification			
18	Is your company's prequalification paperwork current?		

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Scope of Work - General		Inc.: Y / N	Cost
General Scope Items			
19	The Cordogan Clark Standard Subcontract Agreement has been reviewed and will be accepted in its entirety without any changes upon award.		
20	Subcontractor to provide union or Prevailing Wage labor to complete scope of work.		
21	Subcontractor to include full time supervision for this scope of work throughout the duration of the project.		
22	Subcontractor responsible to complete all the necessary drawings, permit application forms as required by the City or Village		
23	Subcontractor to provide all licenses, business and bond fees as required for their scope of work as required by the City or Village		
23	All plan review and inspection fees for your work will be included.		
24	Subcontractor is responsible for scheduling any and all testing required and is included in base bid. Additionally, it is the responsibility of the subcontractor to schedule and coordinate all required inspections associated with their scope of work. Contractor to arrange, schedule, and be present for all necessary inspections pertaining to their trade.		
25	Subcontractor will designate a company representative who will attend all coordination meetings, and prepare fully coordinated shop drawings. All cost for engineering, AutoCAD drafting and plan reproduction will be included in base bid.		
26	All Drawings & As-Builts to be based off of the latest version of AutoCAD or Revit		
27	Each contractor has the responsibility to immediately examine the contract documents for errors, inconsistencies or omissions. Any such errors, inconsistencies or omissions shall immediately be brought to the attention of Cordogan Clark prior to contract being issued.		
28	Each subcontractor has the responsibility to field measure and verify each location for installed work before ordering their material or equipment. If the subcontractor does not field measure for their work, there shall not be any additional costs to Cordogan Clark or to the owner if the material or equipment installation does not fit or is not acceptable to the owner, architect, or contractor.		
29	Subcontractor has reviewed the Owner equipment schedules and associated cut sheets and has included all required costs in this bid for receiving, handling, rough-in, and installation of OFCI equipment that pertains to your trade. If there are any jurisdictional issues and your trade claims installation of the OFCI items, that work is to be included in your scope at no additional cost to the project.		
30	Accept and install as specified any equipment furnished by others as it pertains to your scope.		
31	Submittal Log must be submitted within 5 business days of subcontract award for Cordogan Clark review. Reference your trade item specific specification sections along with Section 013300. Upon approval of the submittal log, an updated log must be sent to Cordogan Clark every Monday until all submittals are approved. Failure to submit an updated log will result in that month's payment being rejected. Submittal log must include submittal due date, fabrication time, and delivery to site.		
32	Contractor must use "Autodesk Build" for documentation distribution on this project.		
33	Testing & Inspection Log must be submitted within 10 business days of subcontract award for Cordogan Clark review. Reference your trade item specific specifications for requirements. Upon approval of the testing & inspection log, an updated log must be submitted to Cordogan Clark with each monthly pay application. Failure to submit an updated log will result in that month's payment being rejected.		
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35	Subcontract Affidavit Requirements must be fulfilled for monthly pay applications.		
36	All second tier subcontractors must be identified within 10 days of contractor award. Lien waivers must be provided for each payment request, otherwise this will result in monthly payment being rejected.		
37	Subcontractor will complete the Cordogan Clark labor rate sheet for the current year prior to a contract being awarded to your company		

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Scope of Work - General		Inc.: Y / N	Cost
38	Labor rate escalation will be included with your bid for the duration of the job		
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40	Pending Change Request Log must be submitted with each monthly pay application indicating outstanding CO's and their value to Cordogan Clark's PM. Failure to submit this log will result in that month's payment being rejected.		
41	Submit all as-builts and close-out documents prior to substantial completion date		
42	Supply O&M manuals and owner training session as required.		
43	Subcontractor is responsible for attending a pre-bid walk prior to submitting bid? No extras or change orders will be given for not incorporating existing conditions and dimensions into your work. Any changes to existing conditions are to be included in your base bid.		
44	All Material Free On Board (FOB) to the job site		
45	Subcontractor's project foreman must have a smart phone and/or a tablet device with stand alone internet capabilities, not reliant on Wi-Fi. The smart phone and tablet must be in the foreman's possession at all times until project completion to assist in better communication between the field and office.		
46	Extreme caution is to be used at all times when working on a project site. Proper PPE must be worn.		
47	Subcontractor acknowledges and understands that no material & equipment hoisting will be provided and all costs associated with hoisting in included in their base bid subcontractor's agreement.		
48	Subcontractors are only permitted to deliver the materials they can install in one weeks time unless noted otherwise or provisions are made and approved by the CM		
49	Subcontractor will be responsible for attending the following meetings: weekly project coordination meeting, project specific pretask plan.		
50	Mark up on change orders limited to 10%. Provide detailed backup with each change order request.		
51	Bidder acknowledges certain portions of the work will be completed in phases and/or require multiple mobilizations and agrees all costs have been included in base bid. Phasing per plans and schedule.		
52	Close out documents must be submitted and approved prior to submission of 50% subcontractor billing.		
53	Subcontractor and employees will not smoke within building and only in designated areas.		
54	Provide temporary protection of own work and safety requirements.		
55	Provide all submittals in PDF format. All submittals will be submitted to Cordogan Clark no later than 30 calendar days from issuance of contract.		
56	Subcontractor is aware of limited site availability for storage, lifts, trucks, etc. All costs associated with site conditions pertaining to your phase are included in this subcontract. Site logistics must be coordinated and approved by the Construction Manager.		
57	All required street closure permits and flaggers necessary for hoisting operations. All street cleaning to be included.		
58	All survey and layout associated with this scope of work has been considered and is included in the base bid. Layout work to proceed as required to maintain the progress of the job in accordance with the contractor schedule. Control points and benchmarks to be provided/established by Cordogan Clark.		
59	Subcontractors will be required to provide scanning, coring, saw cutting, and disposal for their own work. Holes not utilized must be filled in by the subcontractor with concrete or UL approved fire stopping system. Shop drawings for the Structural Engineer's review will be required prior to cutting and coring.		
60	When penetrating or removing floor and roof decks or wall penetrations, provide a catch deck or an additional worker to prevent material from falling and injuring others.		

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Scope of Work - General		Inc.: Y / N	Cost
61	Subcontractor will furnish, install, certify, and label fire caulking & fire stopping systems for penetrations installed by this subcontractor, per local code and/or AHJ.		
62	Subcontractor to provide all daily clean up of all construction debris generated from their scope of work, their workmen, or site conditions. All clean up associated with this scope of work will be brought to a gondola/dumpster provided by Cordogan Clark, on a daily basis.		
63	Cordogan Clark will be implementing a "NOTHING HITS THE FLOOR" program on this project, which includes the following: 1. Cordogan Clark Superintendent work with subcontractors to minimize staging of materials on site. 2. Any materials staged on site must be on a mobile platform or carts. Any material staged on site without a mobile platform or cart will be removed at the subcontractors expense. 3. All trades are required to put scrap and debris directly into a portable trash container. Laborers will empty the trash containers daily. (This pertains to general refuse, demolition material is the subcontractors responsibility) 4. Any debris found on the floor in subcontractors work area, at the end of the day, will be photographed and picked up at the subcontractors expense.		
64	Subcontractor shall support his work independently from structure above and not from other trades' work.		
65	Subcontractor is responsible to coordinate the installation of his work with other trades.		
66	Provide labor rate sheet with overtime rates included. Prevailing wage minimum requirements.		
67	<u>NO</u> substitutions of materials, manufacturers, or specified installation methods are acceptable unless prior approved. Approval must be agreed to prior to submittal issuance. Confirm any substitutions from project drawings or specifications that have been made.		
68	Conflict between drawings and specifications, whichever is greater cost takes priority.		
69	Warranties as required per project specifications. Warranty to start from the date of project substantial completion as established by the Owner, Architect, and Construction Manager.		
70	Provide and dispose of all required mock-ups per contract documents, labor, and materials.		
71	Provide all inspections, licenses, bonds, tests, fees, permits, and procurement required by the contract documents and governing authorities of this work.		
72	Subcontractor to include overtime or standby work that may be required for inspections and to maintain schedule.		
73	Subcontractor to waterproof, fire safe, and seal all owned penetrations in floor, wall, or ceiling.		
74	Subcontractor understands and accepts that any interaction (both verbal and nonverbal) with the residents, pedestrians, etc. which is deemed inappropriate, offensive, lewd, vulgar, etc. is unacceptable. The occurrence of such interaction will result in the immediate dismissal of the offending party with this dismissal being at the sole discretion of the Construction Manager.		
75	No alcohol, illegal drugs, or firearms allowed on site or in employee vehicles.		
76	Replacement materials and equipment is included with delivery within five business days or as otherwise required in order to no impact subsequent trades.		
77	For items under this contract, provide touch-up and/or replacement of damaged materials prior to owner acceptance of areas, if damaged materials are caused by this subcontractor. Subcontractor agrees to repair any utilities, sidewalks, park ways, medians, streets, etc., that are damaged due to this subcontractor's negligence.		
78	Subcontractor is responsible for protecting all construction materials and equipment stored at the site or off the site from weather or any other conditions. Any damaged or broken work in place prior to final acceptance shall be repaired and replaced by the subcontractor, if damaged materials are caused by this subcontractor. Subcontractor will protect existing work in place while performing his work. Any work performed by others that is damaged by this subcontractor or his agents shall be the responsibility of the subcontractor to replace at no additional cost to the owner.		
79	Material deliveries must be scheduled and coordinated with the Construction Manager. Forty Eight (48) hours notice prior to all deliveries is required.		
80	Overhead and fee is not allowed on premium work performed directly for the Construction Manager.		

Kendall County Probation Office Buildout

807 West John Street

Yorkville, IL 60560

Job#: 22-1103



BP#2: ELECTRICAL		< Enter Company >	
		< Enter Contact >	
		< Enter Phone# >	
		< Enter Email or Fax# >	
Scope of Work - General		Inc.: Y / N	Cost
81	Overhead and fee is not allowed on work performed directly for the Construction Manager as an internal change order.		
82	Understanding that the jobsite is not a perfect situation and minor adjustments may be required in order to complete the work at no additional cost.		
83	All contractors are responsible for and required to secure and protect their work tools, equipment, and materials on a daily basis.		
84	Extra work tickets shall be submitted to the Construction Manager's superintendent for signed approval within no less than eighteen (18) hours of the conclusion of said work which include but are not limited to area(s) worked in, nature of work performed, and the names of each of the workers performing said work. Change order requests for extra work tickets not signed by the Construction Manager's superintendent will not be accepted. Daily hourly tickets must be verified by the Construction Manager each day.		
85	The subcontractor shall examine the substrate prior to installation and shall not proceed if the substrate is not to the established requirements. Proceeding with work implied acceptance of the substrate and the subcontractor will not be reimbursed for cost and/or time associated with removing work installed on substrates unacceptable to the subcontractor.		
86	Use specified products and manufacturers, include delivery charges		
87	Subcontractor to provide all traffic control and safety precautions for own work.		
88	Subcontractor includes all labor and material increases through the target substantial completion date.		
89	This facility is an occupied mission critical facility, which must remain operational all times. It is the responsibility of this contractor to research and investigate existing systems they may impact in the course of the work. Construction activities that may disrupt normal operations must be planned, submitted in writing 72 hours in advance to the CM, and approved by the CM before impacting normal operations. This contractor will be responsible for impacts to the project should they fail to provide adequate planning or adequate notice to the CM		
90	Subcontractor to handle all material, equipment, and onsite storage and coordinate with Construction Manager regarding site logistics.		
Schedule Requirements			
91	Project Schedule has been reviewed. All labor and material escalation considerations have been included as part of the base bid noted above.		
92	Your Site Logistics Plan will be reviewed with the CM and any special considerations shall be included in your bid.		
93	Mobilizations and phasing as required by the project schedule are included in the base bid.		
94	Subcontractor will be responsible for the detailed scheduling and phasing of its work, including provisions for adequate manpower, as required by the overall project schedule, coordination with preceding or subsequent trades, and other field conditions, unless otherwise directed by the Contractor. The effects of improper coordination by this Subcontractor with the other trades shall not be a cause for delay or loss of productivity claims by this Subcontractor.		
94	Subcontractor will guarantee the man power to complete the job per Cordogan Clark's schedule, or work overtime if you fall behind the schedule at no additional cost to Cordogan Clark or Owner		
Scope of Work - Trade Specific		Inc.: Y / N	Cost
PLANS, SPECIFICATION AND BID DOCUMENTS			
95	Plans, Specifications and Bid Documents have been reviewed and included. BID DATED: 02/13/24 SPECS DATED: 02/13/24 PROJECT SCHEDULE DATED: 04/01/24		
96	THIS SCOPE SHEET IS NOT NECESSARILY ALL INCLUSIVE. YOU ARE RESPONSIBLE FOR YOUR OWN TAKEOFFS AND FINAL COSTS. THIS SCOPE SHEET HELPS TO INSURE BIDS ARE COMPARABLE.		
97	"Provide" shall mean to "Furnish and Install" throughout this scope of work		
SCOPE:			

Kendall County Probation Office Buildout

807 West John Street

Yorkville, IL 60560

Job#: 22-1103



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		< Enter Email or Fax# >	
Scope of Work - General		Inc.: Y / N	Cost
98	Locate, identify, disconnect, and seal or cap utility services, mechanical systems, and electrical systems serving areas to be selectively demolished		
99	This contractor is responsible for "making safe" electrical work for demolition by others. De-energize, disconnect, and clearly mark electrical fixtures or systems to be discarded with a green spray-painted "X" once they have been "made safe". Clearly mark systems to remain with red danger tape		
99	Modify existing fire alarm system as required and install additional devices to meet NFPA 72 and AHJ Requirements		
100	This trade is responsible for observing the placement of concrete and ensuring their work is correctly located and remains so until the placement of concrete has finished.		
101	Light fixtures shall be positively attached to the grid by at least two connections, each capable of supporting the weight of the light fixture. Light fixtures shall have a minimum of one no. 12 gauge wire connected to the housing and structure above for fixtures 10 lbs or less, two wires for fixtures 10 lbs - 56 lbs. A no. 12 gauge wire must be attached to the grid members within 3" of each corner of the light fixture, unless cross tee rating is greater than or equal to 16 lbs/lf. pendant-hung light fixtures shall be supported by a minimum one no. 9 gauge wire to structure above.		
102	Necessary conduit work and wiring between machine and automatic switches including data rough-ins. This is to signal the power shut-down mode.		
103	During fire mode, the life safety system overrides the building automation. This overriding feature is achieved with additional relays, conduits and wire		
104	It is the electrical contractors to provide adequate support for all light fixtures based on the manufacturer's recommendations		
105	Coordination and installation for fire alarm components including, but not limited to bells, flow switches, etc.		
106	Light fixture removal per general trades disconnect by electrician.		
107	Replace existing electrical equipment in basement, refer to floor plans. Existing needs to stay in operation until new electrical distribution is installed and operational. Contractor will provide a temp generator connected to a new nema connection on new distribution system		
108	Disconnect all devices per power plans		
109	Remove and provide any communication devices per power plans		
110	Provide new power and data outlets as indicated		
111	Provide all switches		
112	Contractor shall install co-located light switches when necessary.		
101	Rework existing fire alarms as required		
113	Provide all electrical hookups for mechanical devices		
114	Provide all exit/emergency lights		
115	Exit/emergencet signs shall include battery backup		
116	Nearest data rack is to be located as per. A2.1		
117	Provide typed circuit board		
118	Remove abandoned wiring completely		
119	Remove electrical equipmed including but not limited to junction boxes, receptacles, switches, devices etc.		
120	All conduit, boxes, wiring, and switches to the lighting zones shown		
121	All receptacles including but not limited to general receptables and GFCI as indicated cross referenced to architectural drawings where discrepancies occur, the higher quantity is to apply, location to be as shown in the Architectural.		
122	All saw cutting, sleeves, and coring in order to complete this Subcontractors scope of work.		
123	Coordinate with CR and ADA door operators		
124	Include fire caulking of your penetrations		
125	Grouting of your equipment bases		
126	Provide all testing, balancing, reports, commissioniing as required.		

Kendall County Probation Office Buildout

807 West John Street

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		< Enter Phone# >	
		< Enter Email or Fax# >	
Scope of Work - General		Inc.: Y / N	Cost
127	Provide in person owner training. All training to be recorded and submitted in a digital format.		
Alternates			
GENERAL CONDITIONS			
128	Provide all layout as required. Cordogan Clark to provide control points and 10' offset of building corners.		
129	Provide labor for verification of subgrade elevations/fine grading of all aggregate sub-base as required.		
130	Provide full time site supervision.		
131	Provide General Labor for Daily Clean up as Required		
132	Provide As-Built Drawings in CAD		
Hoisting		Inc.: Y / N	Cost
Allowances		Inc.: Y / N	Cost
	Per Bid Form		
Alternates		Inc.: Y / N	Cost
	Per Bid Form		
Exclusions		Inc.: Y / N	Cost
Wage Rates (Attach or Fill out)		Unit Cost	Cost
	Include overhead & profit of 10%: Superintendent (Straight Time Time & a Half Double Time)		
	Include overhead & profit of 10%: Foreman (Straight Time Time & a Half Double Time)		
	Include overhead & profit of 10%: Journeyman (Straight Time Time & a Half Double Time)		
Total Base Bid with Addendum			\$0
Allowances			\$0
Alternates			\$0
Total Bid Including Allowances & Alternates			\$0
Budget Amount			\$0
Transfer To (-)/ From (+) Buyout			\$0

A/E/CM Signature

CONTRACTOR Signature

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. See Division 1 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.

1.2 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of unit prices is included in Form of Proposal Section 004000. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. See Bid Form 004000 for unit prices.

END OF SECTION 012200

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets.
2. Submit the Schedule of Values to Architect at earliest possible date but no later than ten days before the date scheduled for submittal of initial Applications for Payment.
3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
2. Submit draft of AIA Document G703 Continuation Sheets.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: Reviewed Applications for Payment shall be submitted to Architect no later than 5 business days before the end of the current period. The period covered by each Application for Payment is one month, ending on the last day of the month.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit three (3) signed and notarized original copies of each Application for Payment and waivers of lien and similar attachments to Architect by a method ensuring receipt within 24 hours. One copy shall include Certified Payroll report(s) for the pay period.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Current Waiver: Submit a waiver for the full amount of the current Application for Payment.
 2. Trailing Waivers: Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 3. When an application shows completion of an item, submit final or full waivers.
 4. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Schedule of unit prices.
 5. Submittals Schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. List of Contractor's principal consultants.
 8. Copies of building permits.
 9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 10. Initial progress report.
 11. Report of preconstruction conference.
 12. Certificates of insurance and insurance policies.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."

6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Project meetings.
 - 3. Requests for Interpretation (RFIs).
- B. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
 9. Project closeout activities.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
 2. Sheet Size: At least 8-1/2 by 11 inches. but no larger than 24 by 36 inches.
 3. Number of Copies: Submit electronically in PDF format.
 4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.5 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three (3) days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than fifteen (15) days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. LEED requirements.
 - l. Preparation of Record Documents.
 - m. Use of the premises and existing building
 - n. Work restrictions.
 - o. Owner's occupancy requirements.
 - p. Responsibility for temporary facilities and controls.
 - q. Construction waste management and recycling.
 - r. Parking availability.
 - s. Office, work, and storage areas.
 - t. Equipment deliveries and priorities.
 - u. First aid.
 - v. Security.
 - w. Progress cleaning.
 - x. Working hours.
 3. Minutes: Record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. The Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written recommendations.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at regular intervals. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule,

in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- 1) Review schedule for next period.
- b. Review present and future needs of each entity present, including the following:
- 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) RFIs.
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
- a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Project name.
 2. Date.
 3. Name of Contractor.
 4. Name of Architect.
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.
 8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.
 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
- C. RFI Form: Use the RFI Form included within the Exhibits. Submit RFI's electronically in PDF format.
1. Identify each page of attachments with the RFI number and sequential page number.
- D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow five (5) working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within ten (10) days of receipt of the RFI response.
- E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within five (5) days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log at regular intervals to be determined at pre-construction meeting. Use CSI Log Form 13.2B.

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Daily construction reports.
 - 4. Field condition reports.
- B. See Division 01 Section "Payment Procedures" for submitting the Schedule of Values.

1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

- E. Fagnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- F. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

- A. Submittals Schedule: Submit three (3) copies of schedule for approval. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- B. Contractor's Construction Schedule: Submit electronically in PDF format initial schedule, large enough to show entire schedule for entire construction period.
 - 1. Submit an electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
- C. Daily Construction Reports: Submit electronically in PDF format at weekly intervals.
- D. Field Condition Reports: Submit electronically in PDF format at time of discovery of differing conditions.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities so no activity is longer than twenty (20) days, unless specifically allowed by Architect.
 - 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 - 4. Startup and Testing Time: Include not less than five (5) days for startup and testing.
 - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
 - 1. Phasing: Arrange list of activities on schedule by phase.
 - 2. Work under More Than One Contract: Include a separate activity for each contract.
 - 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 - 4. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.

- c. Uninterruptible services.
- d. Partial occupancy before Substantial Completion.
- e. Use of premises restrictions.
- f. Provisions for future construction.
- g. Seasonal variations.
- h. Environmental control.

5. Work Stages: Indicate important stages of construction for each major portion of the Work.

- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within twenty (20) days of date established for commencement of the Work. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in ten (10) percent increments within time bar.

2.4 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. Equipment at Project site.
 - 3. Material deliveries.
 - 4. High and low temperatures and general weather conditions.
 - 5. Accidents.
 - 6. Stoppages, delays, shortages, and losses.
 - 7. Meter readings and similar recordings.
 - 8. Orders and requests of authorities having jurisdiction.
 - 9. Services connected and disconnected.
 - 10. Equipment or system tests and startups.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation on CSI Form 13.2A. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute electronically in PDF format copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.
- C. See Division 01 Section "Quality Requirements" for submitting test and inspection reports.
- D. See Division 01 Section "Closeout Procedures" for submitting warranties.
- E. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
- F. See Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
- G. See Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Submit all submittals in PDF format electronically.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
 - 1. Transmittal Form: Submit a transmittal in pdf file with all submittals. For submittals that are required via hardcopy, Use AIA Document G810.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked "Approved" or "Approved As Noted" notation from Architect's action stamp.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating "Reviewed" or "Reviewed As Noted" notation from Architect's action stamp taken by Architect.

1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

- A. General: At Contractor's written request and upon receipt of a completed and signed Electronic Release of Liability Form, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
 - 1. Provided Cordogan, Clark & Associates, Inc. CCA exercises reasonable care in the electronic or disk transmission of data, information or documents to the above indicated receivee, the receivee shall be responsible for and solely bear all damages, losses or expenses it or Cordogan, Clark & Associates, its employees, officers and consultants incur as a result of:
 - a. Errors or defects introduced by such transmission
 - b. The Receivees' and its independent contractors' or agents' automated conversion or reformatting of the data, information or documents transmitted
 - c. Defects or errors in the Receivees' and its independent contractors' or agents' software or hardware utilized to receive, transmit, utilize, format or reproduce data, information or documents
 - 2. Provided Cordogan, Clark & Associates and its consultants have exercised reasonable care in the selection and operation of hardware and software for its computer aided design services, Cordogan, Clark & Associates shall not be responsible or liable for errors, defects, inexactitudes or anomalies in data, information of documents (including drawings and specifications) caused by:
 - a. Cordogan, Clark & Associates or its consultants' computer software or hardware defects or errors

- b. Cordogan, Clark & Associates consultants' electronic or disk transmittal of data, information or documents
 - c. Cordogan, Clark & Associates reformatting or automated conversion of data, information or documents electronically or disk transmitted from Cordogan, Clark & Associates' consultants to Cordogan, Clark & Associates.
 3. Receivee waives all claims against Cordogan, Clark & Associates, its employees, officers and consultants for damages, losses or expenses it incurs arising from such defects or errors.
 4. If as otherwise permitted by this Agreement, the Receivee shall electronically or by disk transmit data, information or documents (including drawings and specifications) to persons other than Cordogan, Clark & Associates, the Receivee shall be responsible for and solely bear all damages, losses or expenses arising from:
 - a. errors or defects introduced by such transmission
 - b. errors or defects introduced by such persons retransmission, automated conversion, reformatting, or reproduction of such data, information or documents
 5. Receivee shall indemnify, defend and hold Cordogan, Clark & Associates and its consultants, together with their respective employees and officers, harmless from and against any claims, suits, demands, causes of action, losses, damages or expenses (including all attorneys' fees and litigation expenses) resulting or arising from errors of defects in data, information or documents, including drawings and specifications, caused or introduced by the Receivee (or its independent contractors and agents):
 - a. Provision or transmission of data, information or documents to Cordogan, Clark & Associates
 - b. Re-transmission, automated conversion, reformatting or reproduction of Cordogan, Clark & Associates created data, information or documents
 - c. Use of defective, erroneous or incompatible software or hardware.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. Submit all submittals electronically.
- B. General: Prepare and submit Action Submittals required by individual Specification Sections.
- C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:

- a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Manufacturer's catalog cuts.
 - e. Wiring diagrams showing factory-installed wiring.
 - f. Printed performance curves.
 - g. Operational range diagrams.
 - h. Compliance with specified referenced standards.
 - i. Testing by recognized testing agency.
4. Number of Copies: Submit electronically in PDF format. Mark up and retain one returned copy as a Project Record Document.
- D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of Architect's CAD Drawings is otherwise permitted.
- 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Notation of coordination requirements.
 - j. Notation of dimensions established by field measurement.
 - k. Relationship to adjoining construction clearly indicated.
 - l. Seal and signature of professional engineer if specified.
 - m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 24 by 36 inches (750 by 1000 mm).
 - 3. Number of Copies: Submit electronically in PDF format.
- E. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
- 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.

- c. Sample source.
 - d. Number and title of appropriate Specification Section.
3. Provide a scan and photos of the sample submitted and submit for tracking and record purposes.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one (1) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 - b. Submit a scan and/or photos of the samples in PDF format at the time of initial submittal to the Architect for tracking and record keeping purposes. Architect may stamp and return scan in lieu or addition to returning actual sample(s).
 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three (3) sets of Samples. Architect will retain two (2) Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
 - b. Submit a scan and/or photos of the samples in PDF format at the time of initial submittal to the Architect for tracking and record keeping purposes. Architect may stamp and return scan in lieu or addition to returning actual sample(s).
- F. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.
1. Number of Copies: Submit electronically in PDF format.
- G. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- H. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- I. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

- J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A.

- 1. Number of Copies: Submit electronically in PDF format.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.

- 1. Number of Copies: Submit electronically in PDF format.
 - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

- C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Statement on condition of substrates and their acceptability for installation of product.
 - 2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
- T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three (3) copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. "Reviewed".

2. "Reviewed – Revise As Noted"
 3. "Reviewed – Revise and Resubmit"
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. See Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.
- D. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- J. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five (5) previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Mockups: Not Required
- J. Laboratory Mockups: Not Required

1.6 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least twenty-four (24) hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. **Testing Agency Responsibilities:** Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- F. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.7 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
- B. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 - 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 - 2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
 - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
 - 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
 - 3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
- E. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
 - 1. Locations of dust-control partitions at each phase of work.
 - 2. HVAC system isolation schematic drawing.
 - 3. Location of proposed air-filtration system discharge.
 - 4. Waste handling procedures.
 - 5. Other dust-control measures.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide concrete bases for supporting posts.
- C. Wood Enclosure Fence: Plywood, 8 feet (2.4 m) high, framed with four 2-by-4-inch (50-by-100-mm) rails, with preservative-treated wood posts spaced not more than 8 feet (2.4 m) apart.
- D. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil (0.25-mm) minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.
- E. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches (914 by 1624 mm).
- F. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 20 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack and marker boards.
 - 3. Drinking water and private toilet.
 - 4. Coffee machine and supplies.
 - 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F .
 - 6. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
 - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Division 01 Section "Closeout Procedures."
- C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service overhead unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 - 2. Install lighting for Project identification sign.
- I. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel.
 - 1. Provide additional telephone lines for the following:
 - a. Provide a dedicated telephone line for each facsimile machine in each field office.
 - b. Provide one telephone line(s) for Owner's use.
 - 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.
 - f. Engineers' offices.
 - g. Owner's office.

- h. Principal subcontractors' field and home offices.
- 3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
- 4. Electronic Communication Service: Provide a desktop computer in the primary field office adequate for use by Architect and Owner to access Project electronic documents and maintain electronic communications.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

- 1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
- 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

- 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
- 2. Recondition base after temporary use, including removing contaminated material, regrading, proof rolling, compacting, and testing.
- 3. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion.

C. Traffic Controls: Comply with requirements of authorities having jurisdiction.

- 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
- 2. Maintain access for fire-fighting equipment and access to fire hydrants.

D. Parking: Provide temporary parking areas for construction personnel.

E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

- 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
- 2. Remove snow and ice as required to minimize accumulations.

F. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

- 1. Identification Signs: Provide Project identification signs. Coordinate information with Architect and Owner.

2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 3. Maintain and touchup signs so they are legible at all times.
- G. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 01 Section "Execution."
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
1. Comply with work restrictions specified in Division 01 Section "Summary."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- G. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- I. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- J. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- K. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.

2. Protect stored and installed material from flowing or standing water.
 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 4. Remove standing water from decks.
 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard, replace, or clean stored or installed material that begins to grow mold.
 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Use permanent HVAC system to control humidity.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove materials that can not be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. See Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
- C. See Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.2 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.3 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use CSI Form 13.1A
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Change Order.
 - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

- B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Store cementitious products and materials on elevated platforms.

5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
 3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.

6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within sixty (60) days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - 2. Requested substitution does not require extensive revisions to the Contract Documents.
 - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 4. Substitution request is fully documented and properly submitted.
 - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 7. Requested substitution is compatible with other portions of the Work.
 - 8. Requested substitution has been coordinated with other portions of the Work.
 - 9. Requested substitution provides specified warranty.

2.3 COMPARABLE PRODUCTS

- A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 3. Evidence that proposed product provides specified warranty.
 - 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 - 5. Samples, if requested.

EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Progress cleaning.
 - 5. Starting and adjusting.
 - 6. Protection of installed construction.
 - 7. Correction of the Work.
- B. See Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 SUBMITTALS

- A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.

- B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on CSI Form 13.2A, "Request for Interpretation."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

3.4 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

- D. **Installed Work:** Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. **Concealed Spaces:** Remove debris from concealed spaces before enclosing the space.
- F. **Exposed Surfaces in Finished Areas:** Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. **Waste Disposal:** Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. **During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.**
- I. **Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.**

3.6 STARTING AND ADJUSTING

- A. **Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.**
- B. **Adjust operating components for proper operation without binding. Adjust equipment for proper operation.**
- C. **Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.**
- D. **Manufacturer's Field Service:** If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. **Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.**
- B. **Comply with manufacturer's written instructions for temperature and relative humidity.**

3.8 CORRECTION OF THE WORK

- A. **Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."**

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. See Divisions 2 through 42 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.2 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least ten (10) days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
 - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 - 3. Products: List products to be used and firms or entities that will perform the Work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
 - 6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
 - 7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.3 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

1. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- B. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:
 1. N/A
- C. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.4 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Disposing of nonhazardous demolition and construction waste.

1.2 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 QUALITY ASSURANCE

- A. Waste Management Conference: Conduct conference at Project site.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale and Donation: Not permitted on Project site.

C. Salvaged Items for Owner's Use:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

3.2 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Warranties.
 - 3. Final cleaning.
- B. See Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
- C. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
- D. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
- E. See Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.
- F. See Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBMITTALS

- A. Before Final Payment is approved, the Contractor shall submit electronically in PDF format to the Architect including documentation as note in the following sections:
 - 1. Closeout Procedures
 - 2. Operation and Maintenance Data
 - 3. Project Record Documents

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Advise Owner of pending insurance changeover requirements.
 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 8. Complete startup testing of systems.
 9. Submit test/adjust/balance records.
 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 11. Advise Owner of changeover in heat and other utilities.
 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 13. Complete final cleaning requirements, including touchup painting.
 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy

of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit list electronically in PDF format. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Provide warranty documents electronically in PDF format.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - f. Sweep concrete floors broom clean in unoccupied spaces.
 - g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - i. Remove labels that are not permanent.
 - j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

- 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - k. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Replace parts subject to unusual operating conditions.
 - m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - n. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - o. Leave Project clean and ready for occupancy.
- C. Pest Control: Make a final inspection and rid Project of rodents, insects, and other pests.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Emergency manuals.
 - 2. Operation manuals for systems, subsystems, and equipment.
 - 3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.
- B. See Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

- A. Manual: Submit electronically in PDF format each manual in final form at least fifteen (15) days before final inspection. Architect will return copy with comments within fifteen (15) days after final inspection.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit electronically in PDF format each corrected manual within fifteen (15) days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.

3. Name and address of Owner.
 4. Date of submittal.
 5. Name, address, and telephone number of Contractor.
 6. Name and address of Architect.
 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
 5. Submit all Operation and Maintenance data electronically in PDF format.

2.2 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, gas leak, water leak, power failure, water outage, equipment failure and chemical release or spill.

- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
- B. Descriptions: Include the following:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:

1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:
- D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures:
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
- F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
- C. See Division 01 Section "Closeout Procedures" for binder submittal requirements.
- D. See Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal: Submit electronically in PDF format. Marked-up Record Prints. Architect will initial and date each set and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return prints for organizing into sets, printing, binding, and final submittal.
 - b. Final Submittal: Submit electronically in PDF format marked-up Record Prints, and the following:
- B. Record Specifications: Submit electronically in PDF format, including addenda and contract modifications.
- C. Record Product Data: Submit electronically in PDF format each Product Data submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - 2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 - 3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. Demonstration and training videotapes.
- B. See Divisions 02 through 49 Sections Sections for specific requirements for demonstration and training for products in those Sections.

1.2 SUBMITTALS

- A. Instruction Program: Submit electronically in PDF format outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
- B. Demonstration and Training Videos: Submit two (2) copies within seven (7) days of end of each training module. Submit electronically.

1.3 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site. Review methods and procedures related to demonstration and training.

- D. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include system and equipment descriptions, operating standards, regulatory requirements, equipment function, operating characteristics, limiting conditions, and performance curves.
 - 2. Documentation: Review emergency, operations, and maintenance manuals; Project Record Documents; identification systems; warranties and bonds; and maintenance service agreements.
 - 3. Emergencies: Include instructions on stopping; shutdown instructions; operating instructions for conditions outside normal operating limits; instructions on meaning of warnings, trouble indications, and error messages; and required sequences for electric or electronic systems.
 - 4. Operations: Include startup, break-in, control, and safety procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; operating procedures for emergencies and equipment failure; and required sequences for electric or electronic systems.
 - 5. Adjustments: Include alignments and checking, noise, vibration, economy, and efficiency adjustments.
 - 6. Troubleshooting: Include diagnostic instructions and test and inspection procedures.
 - 7. Maintenance: Include inspection procedures, types of cleaning agents, methods of cleaning, procedures for preventive and routine maintenance, and instruction on use of special tools.
 - 8. Repairs: Include diagnosis, repair, and disassembly instructions; instructions for identifying parts; and review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish an instructor to describe Owner's operational philosophy.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner with at least seven (7) days' advance notice.
- D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of an oral, a written or a demonstration performance-based test.

3.2 DEMONSTRATION AND TRAINING VIDEOS

- A. General: Engage a qualified commercial photographer to record demonstration and training videos. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Video Format: Provide high-quality digital video on DVD.
- C. Narration: Describe scenes on video by audio narration by microphone or dubbing audio narration off-site after video is recorded. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

END OF SECTION 017900

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes:

- 1. Demolition and removal of selected portions of building or structure.

- B. Related sections:

- 1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
 - 2. Section 017300 "Execution" for cutting and patching procedures.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces that might be misconstrued as damage caused by demolition operations. Submit before Work begins.
- D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- E. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.8 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 1. Before selective demolition, Owner will remove the following items:
 - a. Vehicles and other vehicular apparatus.
 - b. Non-fixed vehicular repair tools, supplies and equipment.
 - c. Shelving units and associated contents.
 - d. Existing furniture, computers, printers, and phones.
 - e. Files and file storage.
 - f. Carts and trash bins.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect Construction Manager and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.9 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding. Existing warranties include the following:
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

1.10 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
 - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 1. Strengthen or add new supports when required during progress of selective demolition.
- C. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 5. Maintain fire watch during and for at least 24 hours after flame-cutting operations.
 6. Maintain adequate ventilation when using cutting torches.
 7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 10. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Removed and Salvaged Items:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.
- C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.
- D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.
- E. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.
 - 1. Remove existing roof membrane, flashings, copings, and roof accessories.
 - 2. Remove existing roofing system as required to accommodate new penetrations and curbs.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.

3.8 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Wood blocking and nailers.

1.3 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Timber: Lumber of 5 inches nominal or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
1. NeLMA: Northeastern Lumber Manufacturers' Association.
 2. NLGA: National Lumber Grades Authority.
 3. RIS: Redwood Inspection Service.
 4. SPIB: The Southern Pine Inspection Bureau.
 5. WCLIB: West Coast Lumber Inspection Bureau.
 6. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.

2. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: For the following, from ICC-ES:
 1. Fire-retardant-treated wood.
 2. Power-driven fasteners.
 3. Powder-actuated fasteners.
 4. Metal framing anchors.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 1. Blocking.
 2. Nailers.
 3. Cants.

2.2 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: DOC PS 1, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.3 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.
- D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

3.2 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 064116 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes:
1. Plastic-laminate-faced architectural cabinets.
 2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product high-pressure decorative laminate and cabinet hardware and accessories.
1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
1. Show locations and sizes of cutouts and holes for electrical switches and outlets and other items installed in architectural plastic-laminate cabinets.
- C. Samples for Verification:
1. Plastic laminates.

1.4 QUALITY ASSURANCE

- A. Unless otherwise indicated, comply with AWI's Architectural Woodwork Quality Standards for grades of interior architectural woodwork indicated for construction, finishes, installation, shop

drawings, and other requirements. If there are questions or conflicts between the standards indicated and other language in this section, notify the architect in writing.

- B. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Fabricator must have a minimum of 5 years experience and have a record of successful in-service performance of other projects to meet the Owner's requirements.
- C. Installer Qualifications: Installer shall have skilled workers, must have a minimum of 5 years experience and have a record of successful in-service performance of other projects to meet the Owner's requirements.
- D. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver cabinets until painting and similar operations that could damage woodwork have been completed in installation areas. If cabinets must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets 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.
- B. Field Measurements: Where cabinets are 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 cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. 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 cabinets can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
 - 1. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.
- B. Grade: Premium.
- C. Type of Construction: Frameless.
- D. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.
- E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
 - 1. Basis of Design: Subject to compliance with requirements, provide products by the following manufacturer:
 - a. Wilsonart International; Div. of Premark International, Inc.
 - b. Nevamar
 - c. Formica
- F. Laminate Cladding for Exposed Surfaces:
 - 1. Horizontal Surfaces: Grade HGS.
 - 2. Postformed Surfaces: Grade HGP.
 - 3. Vertical Surfaces: Grade HGS.
 - 4. Edges: Grade HGS.
 - 5. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels.
- G. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.
- H. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
 - 1. Join subfronts, backs, and sides with glued dovetail joints.
- I. Colors, Patterns, and Finishes:
 - 1. As indicated in Drawings

2.2 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.

1. Wood Moisture Content: 5 to 10 percent.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
1. Medium-Density Fiberboard: ANSI A208.2, Grade 130, made with binder containing no urea formaldehyde.
 2. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea formaldehyde.
 3. Softwood Plywood: DOC PS 1, medium-density overlay.
 4. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Materials, General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
1. Use treated materials that comply with requirements of referenced woodworking standard. Do not use materials that are warped, discolored, or otherwise defective.
 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
 3. Identify fire-retardant-treated materials with appropriate classification marking of qualified testing agency in the form of removable paper label or imprint on surfaces that will be concealed from view after installation.
- B. Fire-Retardant-Treated Lumber and Plywood: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
1. Kiln dry lumber and plywood after treatment to a maximum moisture content of 19 and 15 percent, respectively.
 2. For items indicated to receive a stained or natural finish, use organic resin chemical formulation.
 3. Mill lumber after treatment within limits set for wood removal that do not affect listed fire-test-response characteristics, using a woodworking shop certified by testing and inspecting agency.
 4. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
- C. Fire-Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to

achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.

1. For panels 3/4 inch (19 mm) thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of rupture, 1600 psi (11 MPa); modulus of elasticity, 300,000 psi (2070 MPa); internal bond, 80 psi (550 kPa); and screw-holding capacity on face and edge, 250 and 225 lbf (1100 and 1000 N), respectively.
 2. For panels 13/16 to 1-1/4 inches (20 to 32 mm) thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi (9 MPa); modulus of elasticity, 250,000 psi (1720 MPa); linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf (1100 and 780 N), respectively.
- D. Fire-Retardant Fiberboard: Medium-density fiberboard panels complying with ANSI A208.2, made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E 84.

2.4 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087111 "Door Hardware (Descriptive Specification)."
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening[, self-closing].
- C. Back-Mounted Pulls: BHMA A156.9, B02011.
- D. Pulls: Back mounted, 5 inches long, 3/8 inch in diameter, Brushed Satin Nickel.
 1. Basis of Design: Top Knobs Hopewell Bar, Nouveau Collection M430.
- E. Catches: Magnetic catches, BHMA A156.9, B03141.
- F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081
- G. Shelf Rests: BHMA A156.9, B04013; metal.
- H. Drawer Slides: BHMA A156.9.
 1. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.
 2. For drawers not more than 6 inches (150 mm) high and not more than 24 inches (600 mm) wide, provide Grade 1HD-100.
 3. For drawers more than 6 inches (150 mm) high or more than 24 inches (600 mm) wide, provide Grade 1HD-100.
- I. Door Locks: BHMA A156.11, E07121.
- J. Drawer Locks: BHMA A156.11, E07041.

- K. Door and Drawer Silencers: BHMA A156.16, L03011.
- L. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Stainless Steel: BHMA 630.
- M. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.5 MISCELLANEOUS 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. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
- C. Adhesives: Do not use adhesives that contain urea formaldehyde.
- D. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
 - 1. Adhesive for Bonding Edges: Hot-melt adhesive.

2.6 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- B. Fabricate cabinets to dimensions, profiles, and details indicated.
- C. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- D. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.

- B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.

3.2 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.
- C. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).
- D. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.
 - 1. Use filler matching finish of items being installed.
- F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
 - 2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches (400 mm) o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch (38-mm) penetration into wood framing, blocking, or hanging strips.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, 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 cabinets on exposed and semiexposed surfaces.

END OF SECTION 064116

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes:
 - 1. Mineral-wool blanket.
- B. Related Sections:
 - 1. Section 092900 "Gypsum Board" for sound attenuation blanket used as acoustic insulation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 GLASS-FIBER BLANKET

- A. A. Glass-Fiber Blanket, Unfaced: ASTM C665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E84; passing ASTM E136 for combustion characteristics.
 - 1. R-Value: Compliant with Energy Performance Requirements of IECC 2021
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Certaineed; Sustainable Insulation
 - b. Johns Mansville; Fiberglass Insulation
 - c. Owens Corning; Pink Next Gen Fiberglas Insulation
- B. Mineral-Wool Blanket, Unfaced: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. Industrial Insulation Group, LLC (IIG-LLC).
 - b. Roxul Inc.
 - c. Thermafiber, Inc.; an Owens Corning company.

2.2 ACCESSORIES

- A. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF SLAB INSULATION

- A. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

1. If not otherwise indicated, extend insulation a minimum of 24 inches in from exterior walls.

3.4 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Location: Perimeter walls and ceiling of sauna only.
- B. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 3. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
- C. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
- D. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes:
 - 1. Penetrations in fire-resistance-rated walls.
 - 2. Penetrations in horizontal assemblies.
 - 3. Penetrations in smoke barriers.
- B. Related sections:
 - 1. Section 078446 "Joint Firestopping" for joints in or between fire-resistance-rated construction, and in smoke barriers.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Schedule: For each penetration firestopping system. Include location and design designation of qualified testing and inspecting agency.
 - 1. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Installer Certificates: From Installer indicating penetration firestopping has been installed in compliance with requirements and manufacturer's written recommendations.

- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for penetration firestopping.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm experienced in installing penetration firestopping similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements. Manufacturer's willingness to sell its penetration firestopping products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.
- B. Fire-Test-Response Characteristics: Penetration firestopping shall comply with the following requirements:
 - 1. Penetration firestopping tests are performed by a qualified testing agency acceptable to authorities having jurisdiction.
- C. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install penetration firestopping when ambient or substrate temperatures are outside limits permitted by penetration firestopping manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.7 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping is installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping.
- C. Notify testing agency at least seven days in advance of penetration firestopping installations; confirm dates and times on day preceding each series of installations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, through-penetration firestop systems that may be incorporated into the Work include, but are not limited to, those systems indicated that are produced by one of the following manufacturers:

1. A/D Fire Protection Systems Inc.
2. Grace, W. R. & Co. - Conn.
3. Hilti, Inc.
4. Johns Manville.
5. Nelson Firestop Products.
6. NUCO Inc.
7. RectorSeal Corporation (The).
8. Specified Technologies Inc.
9. 3M; Fire Protection Products Division.
10. Tremco; Sealant/Weatherproofing Division.
11. USG Corporation.

2.2 PENETRATION FIRESTOPPING

- A. Provide penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
- B. Penetrations in Fire-Resistance-Rated Walls: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
 1. Fire-resistance-rated walls include fire walls, fire-barrier walls, smoke-barrier walls, and fire partitions.
 2. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
- C. Penetrations in Horizontal Assemblies: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
 1. Horizontal assemblies include floors, floor/ceiling assemblies, and ceiling membranes of roof/ceiling assemblies.
 2. F-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated.
 3. T-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
- D. Penetrations in Smoke Barriers: Provide penetration firestopping with ratings determined per UL 1479.
 1. L-Rating: Not exceeding 5.0 cfm/sq. ft of penetration opening at 0.30-inch wg at both ambient and elevated temperatures.
- E. Exposed Penetration Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

- F. VOC Content: Penetration firestopping sealants and sealant primers shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
- G. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.
1. Permanent forming/damming/backing materials, including the following:
 - a. Slag-wool-fiber or rock-wool-fiber insulation.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Fillers for sealants.
 2. Temporary forming materials.
 3. Substrate primers.
 4. Collars.
 5. Steel sleeves.

2.3 FILL MATERIALS

- A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.
- E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

- G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.
- I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and sloped surfaces, unless indicated firestopping limits use of nonsag grade for both opening conditions.

2.4 MIXING

- A. For those products requiring mixing before application, comply with penetration firestopping manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing penetration firestopping to comply with manufacturer's written instructions and with the following requirements:
 - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping.
 - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.

- B. Priming: Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent penetration firestopping from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing firestopping's seal with substrates.

3.3 INSTALLATION

- A. General: Install penetration firestopping to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestopping.
- C. Install fill materials for firestopping by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

- A. Identify penetration firestopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
 - 1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
 - 2. Contractor's name, address, and phone number.
 - 3. Designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Manufacturer's name.
 - 6. Installer's name.

3.5 FIELD QUALITY CONTROL

- A. Construction manager to engage a qualified third party testing agency to perform tests and inspections.
- B. Where deficiencies are found or penetration firestopping is damaged or removed because of testing, repair or replace penetration firestopping to comply with requirements.
- C. Proceed with enclosing penetration firestopping with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping is without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping and install new materials to produce systems complying with specified requirements.

3.7 PENETRATION FIRESTOPPING SCHEDULE

- A. Where UL-classified systems are indicated, they refer to alpha-alpha-numeric designations listed in UL's "Fire Resistance Directory" under product Category XHEZ.
- B. Firestop Systems with No Penetrating Items:
 - 1. Available UL-Classified Systems:
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction : A, J, L
 - c. System Identification: 0001-0999.
 - 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - b. Silicone sealant.
 - c. Intumescent putty.
 - d. Mortar.
- C. Firestop Systems for Metallic Pipes, Conduit, or Tubing:
 - 1. Available UL-Classified Systems:
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction : A, J, L
 - c. System Identification: 1001-1999.
 - 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.

- b. Silicone sealant.
- c. Intumescent putty.
- d. Mortar.

D. Firestop Systems for Nonmetallic Pipe, Conduit, or Tubing:

- 1. Available UL-Classified Systems
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction: A, J, L
 - c. System Identification: 2001-2999.
- 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - b. Silicone sealant.
 - c. Intumescent putty.
 - d. Intumescent wrap strips.
 - e. Firestop device.

E. Firestop Systems for Electrical Cables:

- 1. Available UL-Classified Systems:
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction: A, J, L
 - c. System Identification: 3001-3999.
- 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - b. Silicone sealant.
 - c. Intumescent putty.
 - d. Silicone foam.
 - e. Pillows/bags.

F. Firestop Systems for Cable Trays:

- 1. Available UL-Classified Systems:
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction: A, J, L.
 - c. System Identification: 4001-4999.
- 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - b. Intumescent putty.
 - c. Silicone foam.
 - d. Pillows/bags.
 - e. Mortar.

G. Firestop Systems for Insulated Pipes:

- 1. Available UL-Classified Systems:
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction: A, J, L.

- c. System Identification: 5001-5999.
 - 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - b. Intumescent putty.
 - c. Silicone foam.
 - d. Intumescent wrap strips.
- H. Firestop Systems for Miscellaneous Electrical Penetrants:
 - 1. Available UL-Classified Systems:
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction: A, J, L.
 - c. System Identification: 6001-6999.
 - 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - b. Intumescent putty.
 - c. Mortar.
- I. Firestop Systems for Miscellaneous Mechanical Penetrants:
 - 1. Available UL-Classified Systems:
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction: A, J, L
 - c. System Identification: 7001-7999.
 - 2. Type of Fill Materials: One or both of the following:
 - a. Latex sealant.
 - b. Mortar.
- J. Firestop Systems for Groupings of Penetrants:
 - 1. Available UL-Classified Systems:
 - a. Construction Penetrated: F, W, C
 - b. Type of Construction: A, J, L.
 - c. System Identification: 8001-8999.
 - 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - b. Mortar.
 - c. Intumescent wrap strips.
 - d. Firestop device.
 - e. Intumescent composite sheet.

END OF SECTION 078413

SECTION 078446 - FIRE-RESISTIVE JOINT SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes fire-resistive joint systems at:
 - 1. Head of wall joints
 - 2. Wall to wall joints
- B. Related Sections:
 - 1. Section 078413 "Penetration Firestopping" for penetrations in fire-resistance-rated walls, horizontal assemblies, and smoke barriers.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Schedule: For each fire-resistive joint system. Include location and design designation of qualified testing agency.
 - 1. Where Project conditions require modification to a qualified testing agency's illustration for a particular fire-resistive joint system condition, submit illustration, with modifications marked, approved by fire-resistive joint system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.

- B. Installer Certificates: From Installer indicating fire-resistive joint systems have been installed in compliance with requirements and manufacturer's written recommendations.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for fire-resistive joint systems.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with UL's "Qualified Firestop Contractor Program Requirements."
- B. Installer Qualifications: A firm experienced in installing fire-resistive joint systems similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements. Manufacturer's willingness to sell its fire-resistive joint system products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.
- C. Fire-Test-Response Characteristics: Fire-resistive joint systems shall comply with the following requirements:
 - 1. Fire-resistive joint system tests are performed by a qualified testing agency acceptable to authorities having jurisdiction.
 - 2. Fire-resistive joint systems are identical to those tested per testing standard referenced in "Fire-Resistive Joint Systems" Article. Provide rated systems complying with the following requirements:
 - a. Fire-resistive joint system products bear classification marking of qualified testing agency.
 - b. Fire-resistive joint systems correspond to those indicated by reference to designations listed by the following:
 - 1) UL in its "Fire Resistance Directory."
 - 2) Intertek ETL SEMKO in its "Directory of Listed Building Products."
- D. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install fire-resistive joint systems when ambient or substrate temperatures are outside limits permitted by fire-resistive joint system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Install and cure fire-resistive joint systems per manufacturer's written instructions using natural means of ventilation or, where this is inadequate, forced-air circulation.

1.7 COORDINATION

- A. Coordinate construction of joints to ensure that fire-resistive joint systems are installed according to specified requirements.
- B. Coordinate sizing of joints to accommodate fire-resistive joint systems.
- C. Notify Testing Agency at least seven days in advance of fire-resistive joint system installations; confirm dates and times on day preceding each series of installations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, fire-resistive joint systems that may be incorporated into the Work include, but are not limited to, those systems indicated that are produced by one of the following manufacturers:
 - 1. Hilti, Inc.
 - 2. Nelson Firestop Products.
 - 3. 3M; Fire Protection Products Division

2.2 FIRE-RESISTIVE JOINT SYSTEMS

- A. Where required, provide fire-resistive joint systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which fire-resistive joint systems are installed. Fire-resistive joint systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.
- B. Joints in or between Fire-Resistance-Rated Construction: Provide fire-resistive joint systems with ratings determined per ASTM E 1966 or UL 2079:
 - 1. Joints include those installed in or between fire-resistance-rated walls floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies.
 - 2. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of construction they will join.
- C. Joints at Exterior Curtain-Wall/Floor Intersections: Provide fire-resistive joint systems with rating determined by ASTM E 119 based on testing at a positive pressure differential of 0.01-inch wg or ASTM E 2307.
 - 1. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the floor assembly.
- D. Joints in Smoke Barriers: Provide fire-resistive joint systems with ratings determined per UL 2079.

1. L-Rating: Not exceeding 5.0 cfm/ft of joint at 0.30 inch wg at both ambient and elevated temperatures.
- E. Exposed Fire-Resistive Joint Systems: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
 - F. VOC Content: Fire-resistive joint system sealants shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 1. Architectural Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
 - G. Low-Emitting Materials: Fire-resistive joint system sealants shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
 - H. Accessories: Provide components of fire-resistive joint systems, including primers and forming materials, that are needed to install fill materials and to maintain ratings required. Use only components specified by fire-resistive joint system manufacturer and approved by the qualified testing agency for systems indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean joints immediately before installing fire-resistive joint systems to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:
 1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of fill materials.
 2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with fill materials. Remove loose particles remaining from cleaning operation.
 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by fire-resistive joint system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

- C. Masking Tape: Use masking tape to prevent fill materials of fire-resistive joint system from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing fire-resistive joint system's seal with substrates.

3.3 INSTALLATION

- A. General: Install fire-resistive joint systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of fire-resistive joint system.
- C. Install fill materials for fire-resistive joint systems by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
 - 2. Apply fill materials so they contact and adhere to substrates formed by joints.
 - 3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

- A. Identify fire-resistive joint systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of joint edge so labels will be visible to anyone seeking to remove or penetrate joint system. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
 - 1. The words "Warning - Fire-Resistive Joint System - Do Not Disturb. Notify Building Management of Any Damage."
 - 2. Contractor's name, address, and phone number.
 - 3. Designation of applicable testing agency.
 - 4. Date of installation.
 - 5. Manufacturer's name.
 - 6. Installer's name.

3.5 FIELD QUALITY CONTROL

- A. Inspecting Agency: Construction manager to engage a qualified third party testing agency to perform tests and inspections.

- B. Where deficiencies are found or fire-resistive joint systems are damaged or removed due to testing, repair or replace fire-resistive joint systems so they comply with requirements.
- C. Proceed with enclosing fire-resistive joint systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTING

- A. Clean off excess fill materials adjacent to joints as the Work progresses by methods and with cleaning materials that are approved in writing by fire-resistive joint system manufacturers and that do not damage materials in which joints occur.
- B. Provide final protection and maintain conditions during and after installation that ensure fire-resistive joint systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

3.7 FIRE-RESISTIVE JOINT SYSTEM SCHEDULE

- A. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product Category XHBN or Category XHDG.
- A. Head-of-Wall Fire-Resistive Joint Systems:
 - 1. Available UL-Classified Systems:
 - a. Movement: HW-D-0000-0999 (less than or equal to 2").
 - b. Movement: HW-D-1000-1999 (greater than 2" and less than or equal to 6").
 - 2. Assembly Rating: As indicated on drawings.
 - 3. Joint Width: As indicated on drawings.
 - 4. Movement Capabilities: Class I - 50 percent compression or extension.
- B. Wall-to-Wall Fire-Resistive Joint Systems:
 - 1. Available UL-Classified Systems:
 - a. Movement: WW-D-0000-0999 (less than or equal to 2")
 - b. Movement: WW-D-1000-1999 (greater than 2" and less than or equal to 6").
 - 2. Assembly Rating: As indicated on drawings.
 - 3. Joint Width: As indicated on drawings.
 - 4. Movement Capabilities: Class I - 50 percent compression or extension.

END OF SECTION 078446

SECTION 079219 - ACOUSTICAL JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes acoustical sealants.
- B. Related sections:
 - 1. Section 079200 "Joint Sealants" for urethane, latex, and mildew resistant joint sealants for nonacoustical applications.

1.3 ACTION SUBMITTALS

- A. Product Data: For each acoustical joint sealant.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Acoustical-Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.4 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace acoustical joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Provide acoustical joint-sealant products that effectively reduce airborne sound transmission through perimeter joints and openings in building construction, as demonstrated by testing representative assemblies according to ASTM E 90.

2.2 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex acoustical sealant complying with ASTM C 834.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Accumetric LLC; BOSS 826 Acoustical Sound Sealant.
 - b. Hilti, Inc.; CP 506 Smoke and Acoustical Sealant.
 - c. Tremco Incorporated; Tremco Acoustical Sealant.
 - d. United States Gypsum Company; SHEETROCK Acoustical Sealant.
 - 2. Colors of Exposed Acoustical Joint Sealants: As selected by Architect from manufacturer's full range of colors.

2.3 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by acoustical-joint-sealant manufacturer where required for adhesion of sealant to joint substrates.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive acoustical joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing acoustical joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates where recommended by acoustical-joint-sealant manufacturer. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF ACOUSTICAL JOINT SEALANTS

- A. Comply with acoustical joint-sealant manufacturer's written installation instructions unless more stringent requirements apply.
- B. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical joint sealant. Install acoustical joint sealants at both faces of partitions, at perimeters, and through penetrations. Comply with ASTM C 919, ASTM C 1193, and manufacturer's written recommendations for closing off sound-flanking paths around or through assemblies, including sealing partitions to underside of floor slabs above acoustical ceilings.
- C. Acoustical Ceiling Areas: Apply acoustical joint sealant at perimeter edge moldings of acoustical ceiling areas in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of acoustical joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect acoustical joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated acoustical joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079219

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section

1.2 SUMMARY

- A. This section includes hollow-metal work.
- B. Related sections:
 - 1. Section 087100 "Door Hardware" for door hardware for hollow-metal doors.
 - 2. Section 088000 "Glazing" for glazing in hollow metal doors and frames

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, and finishes.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door type.
 - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.

4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.
8. Details of moldings, removable stops, and glazing.
9. Details of conduit and preparations for power, signal, and control systems.

- C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Ceco Door; ASSA ABLOY.
 2. LaForce, Inc.
 3. Steelcraft; an Allegion brand.
- B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 REGULATORY REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

2.3 INTERIOR DOORS AND FRAMES

- A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2. At locations indicated in the Door and Frame Schedule.
 - 1. Physical Performance: Level B according to SDI A250.4.
 - 2. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Metallic-coated, cold-rolled steel sheet, minimum thickness of 0.042 inch.
 - d. Edge Construction: Model 1, Full Flush.
 - e. Core: Manufacturer's standard vertical steel-stiffener core with sound deadening insulation between stiffeners.
 - 3. Frames:
 - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch.
 - b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.
 - c. Construction: Face welded.
 - 4. Exposed Finish: Prime.

2.4 HOLLOW-METAL PANELS

- A. Provide hollow-metal panels of same materials, construction, and finish as adjacent door assemblies.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - 3. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.6 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- I. Glazing: Comply with requirements in Section 088000 "Glazing."
- J. Fire Rated Glazing: Comply with requirements in Section 088813 "Fire-Resistant Glazing"
- K. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.7 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:

1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
2. Fire Door Cores: As required to provide fire-protection ratings indicated.
3. Vertical Edges for Single-Acting Doors: Provide beveled or square edges at manufacturer's discretion.
4. Top Edge Closures: Close top edges of doors with inverted closures, except provide flush closures at exterior doors of same material as face sheets.
5. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
6. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
7. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
 - 1) Two anchors per jamb up to 60 inches high.
 - 2) Three anchors per jamb from 60 to 90 inches high.
 - 3) Four anchors per jamb from 90 to 120 inches high.
 - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
 - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.

- 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - c. Compression Type: Not less than two anchors in each frame.
 - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
 - 6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
 - 7. Terminated Stops: Terminate stops 6 inches above finish floor with a 90-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.
- D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.
- E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
- 1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 - 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- F. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted hairline joints.
- 1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
 - 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
 - 3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 - 4. Provide loose stops and moldings on inside of hollow-metal work.
 - 5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.8 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
- 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.9 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
- B. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, sidelites, borrowed lites, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable stops located on secure side of opening.

- d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
- 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
 - 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 - 5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
 - 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 - 7. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
- 1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
 - c. At Bottom of Door: 3/4 inch plus or minus 1/32 inch.
 - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.
 - 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
 - 3. Smoke-Control Doors: Install doors and gaskets according to NFPA 105.
- D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
- 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes:
1. Solid-core doors with wood-veneer faces.
 2. Factory finishing flush wood doors.
 3. Factory fitting flush wood doors to frames and factory machining for hardware.
- B. Related sections:
1. Section 087100 "Door Hardware" for hardware to be installed in wood doors.
 2. Section 088000 "Glazing" for glass view panels in flush wood doors.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
1. Dimensions and locations of blocking.
 2. Dimensions and locations of mortises and holes for hardware.
 3. Dimensions and locations of cutouts.
 4. Undercuts.
 5. Requirements for veneer matching.
 6. Doors to be factory finished and finish requirements.
- C. Samples for Verification: For factory-finished doors.

1.4 CLOSEOUT SUBMITTALS

- A. Special warranties.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

1.7 WARRANTY

- A. A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 76.2-mm) span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 3. Warranty Period for Solid-Core Interior Doors: Two year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- 1. Algoma Hardwoods, Inc.
- 2. Ampco, Inc.
- 3. Chappell Door Co.
- 4. Eggers Industries.
- 5. Graham; an Assa Abloy Group company.
- 6. Haley Brothers, Inc.
- 7. Ipik Door Company.

8. Lambton Doors.
9. Marlite.
10. Marshfield Door Systems, Inc.
11. Mohawk Flush Doors, Inc.; a Masonite company.
12. Oshkosh Architectural Door Company.
13. Poncraft Door Company.
14. Vancouver Door Company.
15. VT Industries Inc.

2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Wood Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated on Drawings, based on testing at positive pressure in accordance with UL 10C or NFPA 252.
 1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
- B. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

2.3 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
 1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.
- B. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.
- C. Particleboard-Core Doors:
 1. Particleboard: ANSI A208.1, Grade LD-1, made with binder containing no urea-formaldehyde.
 2. Blocking: Provide wood blocking in particleboard-core doors as follows:
 - a. 5-inch (125-mm) top-rail blocking, in doors indicated to have closers.
 - b. 5-inch (125-mm) bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
 - c. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
 3. Provide doors with glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

2.4 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors:

1. Grade: Premium, with Grade AA faces.
2. Species: Match Existing on Site
3. Cut: Match Existing on Site
4. Match between Veneer Leaves: Book match.
5. Assembly of Veneer Leaves on Door Faces: Running match.
6. Pair and Set Match: Provide for doors hung in same opening.
7. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
8. Exposed Vertical and Top Edges: Same species as faces or a compatible species - edge Type A.
9. Core for Non-Fire-Rated Doors: Particleboard.
10. Core for Fire-Rated Doors: As required to achieve fire-protection rating indicated on Drawings.
 - a. Blocking for Mineral-Core Doors: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated on Drawings as needed to eliminate through-bolting hardware.
11. Construction: Seven plies, either bonded or nonbonded construction.
12. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

2.5 LIGHT FRAMES AND LOUVERS

A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.

1. Wood Species: Same species as door faces.
2. Profile: Flush rectangular beads.
3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.

B. Metal Louvers:

1. Blade Type: Vision-proof, inverted V.
2. Metal and Finish: Baked enamel or powder-coated finish.

2.6 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.

1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- C. Openings: Factory cut and trim openings through doors.
1. Light Openings: Trim openings with moldings of material and profile indicated.
 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."
 3. Louvers: Factory install louvers in prepared openings.

2.7 FACTORY FINISHING

- A. General: 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.
1. 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.
- B. Factory finish doors.
- C. Transparent Finish:
1. Grade: Premium.
 2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" System 10, UV curable, water-based.
 3. Staining: Match Existing on Site
 4. Effect: Open-grain finish
 5. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Section 087100 "Door Hardware."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

- C. Install fire-rated doors in accordance with NFPA 80.
- D. Install smoke and draft-control doors in accordance with NFPA 105.
- E. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.
 - a. 2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
- F. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- G. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware for:
 - a. Swinging doors.
2. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the contractor's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors
6. Shower doors
7. Access doors and panels
8. Conduit, junction boxes and wiring.

C. Related Sections:

1. Division 01 Section "Alternates" for alternates affecting this section.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
 - a. "Metal Doors and Frames"
 - b. "Flush Wood Doors"
 - c. "Stile and Rail Wood Doors"
 - d. "Interior Aluminum Doors and Frames"
 - e. "Aluminum-Framed Entrances and Storefronts"
 - f. "Stainless Steel Doors and Frames"
 - g. "Special Function Doors"
 - h. "Entrances"
6. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
7. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.

8. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2019 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

E. WHI – Warnock Hersey Incorporated

F. WI – Woodwork Institute

G. AWI – Architectural Woodwork Institute

H. NAAMM – National Association of Architectural Metal Manufacturers

I. Local applicable codes

1. Use date of standard in effect as of Bid Date.

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
 - b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule:
 - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
 - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
 - c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.
 - 9) Degree of door swing and handing.

- 10) Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components). Operational description should include operational descriptions for: egress, ingress (access), and fire/smoke alarm connections.
 - d. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.
5. Key Schedule:
- a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
 - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
 - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.
6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory or shop prepared for door hardware installation.
- C. Informational Submittals:
1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
 2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.
 3. Certificates of Compliance:
 - a. UL listings for fire-rated hardware and installation instructions if requested by Architect or Authority Having Jurisdiction.
 - b. Installer Training Meeting Certification: Letter of compliance, signed by Contractor, attesting to completion of installer training meeting specified in "QUALITY ASSURANCE" article, herein.
 - c. Electrified Hardware Coordination Conference Certification: Letter of compliance, signed by Contractor, attesting to completion of electrified hardware coordination conference, specified in "QUALITY ASSURANCE" article, herein.
- D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Factory order acknowledgement numbers (for warranty and service)
 - d. Final approved hardware schedule edited to reflect conditions as installed.
 - e. Final keying schedule
 - f. Copies of floor plans with keying nomenclature
 - g. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
 - h. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit a written report of the results of functional testing and inspection for fire door assemblies, in compliance with NFPA 80.
 - a. Written report to be provided to the Owner and be made available to the Authority Having Jurisdiction (AHJ).
 - b. Report to include the door number for each fire door assembly, door location, door and frame material, fire rating, and summary of deficiencies.
2. Submit a written report of the results of functional testing and inspection for required egress door assemblies, in compliance with NFPA 101.
 - a. Written report to be provided to the Owner and be made available to the Authority Having Jurisdiction (AHJ).
 - b. Report to include the door number for each required egress door assembly, door location, door and frame material, fire rating, and summary of deficiencies.

1.04 QUALITY ASSURANCE

- A. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, note the discrepancy in the submittal and request direction from Architect for resolution.
- B. Qualifications and Responsibilities:
 1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
 - a. Warehousing Facilities: In Project's vicinity.
 - b. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 - c. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies like those indicated for this Project.

- d. Coordination Responsibility: Assist in coordinating installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
 - 1) Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.
 2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
 3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
 4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
 - a. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.
 - b. Manufacturers that perform electrical modifications and that are listed by testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
- C. Certifications:
1. Fire-Rated Door Openings:
 - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
 2. Smoke and Draft Control Door Assemblies:
 - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
 - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
 3. Electrified Door Hardware
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
 4. Accessibility Requirements:

- a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

D. Pre-Installation Meetings

1. Keying Conference

- a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.
 - 5) Address for delivery of keys.

2. Pre-installation Conference

- a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- b. Inspect and discuss preparatory work performed by other trades.
- c. Inspect and discuss electrical roughing-in for electrified door hardware.
- d. Review sequence of operation for each type of electrified door hardware.
- e. Review required testing, inspecting, and certifying procedures.

3. Coordination Conferences

- a. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
 - 1) Attendees: Door hardware supplier, door hardware installer, Contractor.
 - 2) After meeting, provide letter of compliance to Architect, indicating when meeting was held and who was in attendance.
- b. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.
 - 1) Attendees: electrified door hardware supplier, doors and frames supplier, electrified door hardware installer, electrical subcontractor, Owner, Owner's security consultant, Architect and Contractor.
 - 2) After meeting, provide letter of compliance to Architect, indicating when coordination conference was held and who was in attendance.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.

2. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
 3. Deliver each article of hardware in manufacturer's original packaging.
- B. Project Conditions:
1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
 2. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- C. Protection and Damage:
1. Promptly replace products damaged during shipping.
 2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
 3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- D. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Direct shipments not permitted, unless approved by Contractor.

1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
 - a. Mechanical Warranty

- 1) Locks
 - a) Schlage L Series: 3 years
 - b) Schlage ND Series: 10 years
 - c) Schlage ALX Series: 10 years
 - d) Falcon: 10 years
- 2) Exit Devices
 - a) Von Duprin: 3 years
 - b) Falcon: 10 years
- 3) Closers
 - a) LCN 4000 Series: 30 years
 - b) LCN 1460 Series: 30 years
 - c) LCN 4050 Series: 25 years
 - d) LCN 1450 Series: 25 years
 - e) LCN 1260 Series: 20 years
 - f) LCN 1250 Series: 15 years
 - g) LCN Concealed: 15 years
 - h) Falcon SC Series: 10 years
 - i) Falcon Concealed: 5 years
- 4) Automatic Operators
 - a) LCN: 2 years
 - b) Falcon: 1 year
- b. Electrical Warranty
 - 1) Locks
 - a) Schlage: 1 year
 - b) Falcon: 1 year
 - 2) Exit Devices
 - a) Von Duprin: 1 year
 - 3) Closers
 - a) LCN: 2 years

1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.

- B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Basis of Design" shall be in accordance with substitution procedure in division 01 25 00. In the individual article for the product category items, shall be in accordance with the QUALITY ASSURANCE article, herein
- C. Approval of products is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval in accordance with substitution procedure in division 01 25 00.

2.02 MATERIALS

A. Fasteners

- 1. Provide door hardware manufactured to comply with published templates generally prepared for machine screw installation.
- 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
- 3. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
- 4. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru bolts are required.
 - a. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

- 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. Cable and Connectors:

- 1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
- 2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
- 3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 5BB series, no substitute.

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
 - c. Interior: Heavy weight steel, all doors with closers and/or overhead stops
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins

2.04 CONTINUOUS HINGES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives, no substitute.

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.

6. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
7. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 ELECTRIC POWER TRANSFER

A. Manufacturers:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin EPT-10, no substitute.

B. Requirements:

1. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
2. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.

2.06 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives, no substitute.

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.07 COORDINATORS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives, no substitute.

B. Requirements:

1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.

2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers, surface vertical rod exit device strikes, or other stop mounted hardware. Factory-prepared coordinators for vertical rod devices as specified.

2.08 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage L9000 series, no substitute.

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches.
7. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
 - a. Lever Design: 07A.

2.09 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage ND series, no substitute.

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.

5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets.
8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.
 - a. Lever Design: Athens.

2.10 AUXILIARY LOCKS

A. Aluminum Door Deadbolt - Narrow Style:

1. Manufacturers and Products:
 - a. Scheduled Manufacturer and Product: Adams Rite MS1850 Series.
2. Requirements:
 - a. Provide narrow style aluminum door deadbolts as specified.
 - b. Cylinders: Refer to "KEYING" article, herein.
 - c. Provide deadbolts with necessary backset with full 1-13/32 inches (36 mm) throw deadbolt.
 - d. Provide manufacturer's standard strikes unless extended lip strikes are necessary to protect trim.

2.11 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Von Duprin 99/33A series, no substitute.

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide flush end caps for exit devices.
7. Provide exit devices with manufacturer's approved strikes.
8. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
9. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
10. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
11. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
12. Provide electrified options as scheduled.

13. Top latch mounting: double or single tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
14. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.
 - a. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.

2.12 ELECTRIC STRIKES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin 6000 Series, no substitute.

B. Requirements:

1. Provide electric strikes designed for use with type of locks shown at each opening.
2. Provide electric strikes UL Listed as burglary resistant that are tested to a minimum endurance test of 1,000,000 cycles.
3. Where required, provide electric strikes UL Listed for fire doors and frames.
4. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.

2.13 PASSIVE INFRARED MOTION SENSORS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage SCAN II Series, no substitute.

B. Requirements:

1. Provide motion sensors as specified in hardware groups.

2.14 POWER SUPPLIES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage/Von Duprin PS900 Series, no substitute.

B. Requirements:

1. Provide power supplies approved by manufacturer of supplied electrified hardware.
2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.

3. Provide regulated and filtered 24 VDC power supply, and UL class 2 listed.
4. Provide power supplies with the following features:
 - a. 12/24 VDC Output, field selectable.
 - b. Class 2 Rated power limited output.
 - c. Universal 120-240 VAC input.
 - d. Low voltage DC, regulated and filtered.
 - e. Polarized connector for distribution boards.
 - f. Fused primary input.
 - g. AC input and DC output monitoring circuit w/LED indicators.
 - h. Cover mounted AC Input indication.
 - i. Tested and certified to meet UL294.
 - j. NEMA 1 enclosure.
 - k. Hinged cover w/lock down screws.
 - l. High voltage protective cover.

2.15 CYLINDERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage Everest 29 T, no substitute.

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
 - a. Conventional Patented Restricted: cylinder with permanent core with patented, restricted keyway.
 - b. Conventional Patented Restricted: cylinder with interchangeable core with patented, restricted keyway.
3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent protected.
4. Nickel silver bottom pins.

2.16 KEYING

A. Scheduled System:

1. Existing factory registered system:
 - a. Provide cylinders/cores keyed into Owner's existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Construction Keying:

- a. Replaceable Construction Cores.
 - 1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - a) 3 construction control keys
 - b) 12 construction change (day) keys.
 - 2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.
2. Permanent Keying:
 - a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - 1) Master Keying system as directed by the Owner.
 - b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
 - c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
 - d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
 - e. Quantity: Furnish in the following quantities.
 - 1) Change (Day) Keys: 3 per cylinder/core.
 - 2) Permanent Control Keys: 3.
 - 3) Master Keys: 6.

2.17 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Telkee

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.18 ELECTRO-MECHANICAL AUTOMATIC OPERATORS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: LCN Senior Swing, no substitute.

B. Requirements:

1. Provide low energy automatic operator units that are electro-mechanical design complying with ANSI/BHMA A156.19.
 - a. Opening: Powered by DC motor working through reduction gears.
 - b. Closing: Spring force.
 - c. Manual, hydraulic, or chain drive closers: Not permitted.
 - d. Operation: Motor is off when door is in closing mode. Door can be manually operated with power on or off without damage to operator. Provide variable adjustments, including opening and closing speed adjustment.
 - e. Cover: Aluminum.
2. Provide units with manual off/auto/hold-open switch, push and go function to activate power operator, vestibule interface delay, electric lock delay, hold-open delay adjustable from 2 to 30 seconds, and logic terminal to interface with accessories, mats, and sensors.
3. Provide drop plates, brackets, or adapters for arms as required to suit details.
4. Provide hard-wired motion sensors and/or actuator switches for operation as specified. Provide weather-resistant actuators at exterior applications.
5. Provide key switches, with LED's, recommended and approved by manufacturer of automatic operator as required for function as described in operation description of hardware sets. Cylinders: Refer to "KEYING" article, herein.
6. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.
7. Provide units with inputs for smoke evacuation doors, where specified, which allow doors to power open upon fire alarm activation and hold open indefinitely or until fire alarm is reset, presence detector input, which prevents closed door from opening or door that is fully opened from closing, hold open toggle input, which allows remote activation for indefinite hold open and close second time input is activated, vestibule inputs, which allow sequencing operation of two units, and SPDT relay for interfacing with latching or locking devices.

2.19 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives, no substitute.

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.20 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives, no substitute.

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Size plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.21 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
 - a. Glynn-Johnson, no substitute.

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.
2. Provide friction type at doors without closer and positive type at doors with closer.

2.22 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives, no substitute.

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.23 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Zero International, no substitute.

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.24 DOOR POSITION SWITCHES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Schlage, no substitute.

B. Requirements:

1. Provide recessed or surface mounted type door position switches as specified.
2. Coordinate door and frame preparations with door and frame suppliers. If switches are being used with magnetic locking device, provide minimum of 4 inches (102 mm) between switch and magnetic locking device.

2.25 FINISHES

A. FINISH: BHMA 626/652 (US26D); EXCEPT:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)
5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

- I. Lock Cylinders:
 - 1. Install construction cores to secure building and areas during construction period.
 - 2. Replace construction cores with permanent cores as indicated in keying section.
- J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Connections to panel interface modules, controllers, and gateways.
 - 6. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- M. Kickplates: Mount kickplates and armor plates flush to bottom of door, centered on door leaf between jambs or jamb seals and mullions.
- N. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- O. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- P. Stops: Provide wall stops for doors unless floor or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- Q. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- R. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- S. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 2. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.05 DOOR HARDWARE SCHEDULE

- A. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- B. Hardware Sets: As indicated on drawings.

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
 - 1. Hollow metal borrowed lites.
 - 2. Non-fire rated hollow metal and flush wood doors.
 - 3. Glazing sealants and accessories.

1.3 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. IBC: International Building Code.
- D. Interspace: Space between lites of an insulating-glass unit.

1.4 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.

- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

1.6 INFORMATIONAL SUBMITTALS

- A. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved by coated-glass manufacturer.
- B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.10 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 - 1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of

insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Guardian Industries Corp.; SunGuard.
 - b. Oldcastle BuildingEnvelope™.
 - c. PPG Industries, Inc.
 - d. Trulite Glass & Aluminum Solutions, LLC.
 - e. Viracon, Inc.
- B. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.
 1. Obtain tinted glass from single source from single manufacturer.
- C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazing.
- C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.
 1. Design Wind Pressures: As indicated on Drawings.
 2. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
 3. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

- D. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
- E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
 - 1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
 - 2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 - 3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
 - 4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
 - 5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. GANA Publications: "Glazing Manual."
 - 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- D. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.
 - 1. Minimum Glass Thickness for Exterior Lites: 6 mm.
 - 2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
- E. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

2.4 GLASS PRODUCTS

- A. Clear Annealed Float Glass: ASTM C 1036, Type I, Class 1 (clear), Quality-Q3.
- B. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
 - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
- C. Heat-Strengthened Float Glass: ASTM C 1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
 - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

2.5 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
 - 1. Neoprene complying with ASTM C 864.
 - 2. EPDM complying with ASTM C 864.
 - 3. Silicone complying with ASTM C 1115.
 - 4. Thermoplastic polyolefin rubber complying with ASTM C 1115.
- B. Soft Compression Gaskets: Extruded, closed-cell, integral-skinned EPDM gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
 - 1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.6 GLAZING SEALANTS

- A. General:
 - 1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - 3. Field-applied sealants shall have a VOC content of not more than 250 g/L.
 - 4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant as approved by glass manufacturer.

2.7 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.8 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
 - 1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
- C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep systems.

3. Minimum required face and edge clearances.
 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where length plus width is larger than 50 inches.
 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

- I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

3.5 CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
 - 1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.

- D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.6 MONOLITHIC GLASS SCHEDULE

- A. Glass Type [MG-1]: Clear annealed float glass.
 - 1. Minimum Thickness: 6 mm.
- B. Glass Type MG-2: Clear fully tempered float glass.
 - 1. Minimum Thickness: 6 mm.
 - 2. Safety glazing required.
 - 3. Refer to A9.1 for alternate glazing.

END OF SECTION 088000

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes non-load-bearing steel framing systems for interior partitions.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
 - 1. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Horizontal deflection of 1/360 of the wall height.
 - b. Vertical deflection at headers 1/360 or as required by manufacturer of opening.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.5 QUALITY ASSURANCE

- A. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other structural data by a qualified professional engineer.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of cold-formed metal framing that are similar to those indicated for this Project in material, design, and extent.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- C. Horizontal Deflection: For wall assemblies, limited to 1/360 of the wall height based on a minimum horizontal loading of 5 lbf/sq. ft. Where walls are subject to increased horizontal loading adjust as required.
- D. Vertical Deflection: For opening header members within wall assemblies, limited to 1/360 of the span.

2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
 - 2. Protective Coating: ASTM A 653/A 653M, G60, hot-dip galvanized unless otherwise indicated.
- B. Studs and Runners: ASTM C 645. Use either steel studs and runners or embossed steel studs and runners.
 - 1. Steel Studs and Runners:
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) MBA Building Supplies.
 - 3) MRI Steel Framing, LLC.
 - 4) Phillips Manufacturing Co.
 - 5) Steel Network, Inc. (The).
 - 6) Telling Industries.
 - b. Minimum Base-Metal Thickness: As required by performance requirements for horizontal deflection.
 - c. Depth: As indicated on Drawings.
 - 2. Embossed Steel Studs and Runners:

- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) ClarkDietrich Building Systems.
 - 3) Marino\WARE.
 - 4) MBA Building Supplies.
 - 5) Phillips Manufacturing Co.
 - 6) Steel Network, Inc. (The).
 - 7) Telling Industries.
- b. Minimum Base-Metal Thickness: As required by horizontal deflection performance requirements.
- c. Depth: As indicated on Drawings.

C. Slip-Type Head Joints: Where indicated, provide one of the following:

- 1. Clip System: Clips designed for use in head-of-wall deflection conditions that provide a positive attachment of studs to runners while allowing 1-1/2-inch minimum vertical movement.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) ClarkDietrich Building Systems.
 - 3) Fire Trak Corp.
 - 4) Steel Network, Inc. (The).
 - 5) Super Stud Building Products Inc.
- 2. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
 - a. Laterally brace studs with continuous strap or cold-rolled channels as required.
- 3. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch-deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
 - a. Where deflection may be great evaluate the lateral stability of the outer-runner flanges and consider using steel channels for tracks instead of non-structural runners.
- 4. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) Blazeframe Industries.
 - 2) CEMCO; California Expanded Metal Products Co.
 - 3) ClarkDietrich Building Systems.
 - 4) MBA Building Supplies.
 - 5) Metal-Lite.
 - 6) Perfect Wall, Inc.
 - 7) Steel Network, Inc. (The).
 - 8) Telling Industries.
- D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
1. Minimum Base-Metal Thickness: 0.035 inch.
- E. Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.
1. Depth: 1-1/2 inches.
 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.
- F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
1. Minimum Base-Metal Thickness: As required by performance requirements for horizontal deflection.
 2. Depth: As indicated on Drawings.
- G. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
 - b. Chicago Metallic Corporation; 640/660 Drywall Ceiling Suspension.
 - c. United State Gypsum Company; Drywall Suspension System.

2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
 - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.3 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Single-Layer Application: As required by horizontal deflection performance requirements unless otherwise indicated.
 - 2. Multilayer Application: As required by horizontal deflection performance requirements unless otherwise indicated.
 - 3. Tile Backing Panels: As required by horizontal deflection performance requirements unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- E. Direct Furring:
1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.4 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
1. Hangers: 48 inches o.c.
 2. Furring Channels (Furring Members): 24 inches o.c.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

- a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
- 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
- 4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
- 5. Do not attach hangers to steel roof deck.
- 6. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
- 7. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes interior gypsum board.
- B. Related Requirements
 - 1. Section 079219 "Acoustical Joint Sealants" for acoustical sealants in sound resistant wall assemblies.
 - 2. Section 092216 "Non-Structural Metal Framing" for non-loadbearing steel framing and suspension systems that support gypsum board panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 INTERIOR GYPSUM BOARD

- A. Gypsum Board, Type X: ASTM C 1396/C 1396M.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Georgia-Pacific Building Products.
 - b. National Gypsum Company.
 - c. United States Gypsum Company.
 2. Thickness: 5/8 inch.
 3. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
- B. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Georgia-Pacific Building Products.
 - b. National Gypsum Company.
 - c. United States Gypsum Company.
 2. Thickness: 1/2 inch.
 3. Long Edges: Tapered.
- C. Impact-Resistant Gypsum Board: ASTM C 1629/C 1629M.
 1. Products: Subject to compliance with requirements, provide one of the following:

- a. American Gypsum; M-Bloc® IR Type X Wallboard.
 - b. National Gypsum Company; Hi-Impact Brand XP Fire-Shield Wallboard.
 - c. Temple-Inland Building Products by Georgia-Pacific; Comfort Guard IR.
 - d. United States Gypsum Company; USG Sheetrock® Brand Mold Tough® VHI (Very High Impact) Firecode® Core.
- 2. Core: 5/8 inch, Type X.
 - 3. Surface Abrasion: Meets or exceeds Level 2 requirements.
 - 4. Surface Indentation: Meets or exceeds Level 1 requirements.
 - 5. Single-Drop Soft-Body Impact: Meets or exceeds Level 3 requirements.
 - 6. Hard-Body Impact: Meets or exceeds Level 3 requirements according to test in Annex A1.
 - 7. Long Edges: Tapered.
 - 8. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
- D. Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. National Gypsum Company; Gold Bond Brand XP Wallboard.
 - b. Temple-Inland Building Products by Georgia-Pacific; Comfort Guard Mold Resistant Wallboard.
 - c. United States Gypsum Company; USG Sheetrock® Brand Mold Tough® Gypsum Panels.
 - 2. Core: 5/8 inch, Type X.
 - 3. Long Edges: Tapered.
 - 4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
- 1. Material: Paper-faced galvanized-steel sheet.
 - 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.
 - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - f. Expansion (control) joint.
 - g. Curved-Edge Cornerbead: With notched or flexible flanges.

2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 - 1. Interior Gypsum Board: Paper.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use setting-type, drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound or high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.
- D. Joint Compound for Mold-resistant Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use mold resistant setting-type taping compound.
 - a. Use mold resistant setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use mold resistant drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use mold resistant drying-type, all-purpose compound.

2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

- D. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- E. Acoustical Joint Sealant: As specified in Section 079219 "Acoustical Joint Sealants"

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.

- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Type X: Vertical surfaces unless otherwise indicated.
 - 2. Ceiling Type: Ceiling surfaces.
 - 3. Impact-Resistant Type: As indicated on Drawings.
 - 4. Mold-Resistant Type: As indicated on Drawings.
 - 5. Skim-Coated Type: As indicated on Drawings.
- B. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
 - 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Multilayer Application:
 - 1. On ceilings, apply gypsum board indicated for base layers before applying face layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
 - 2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer

joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.

3. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

D. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written instructions and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners unless otherwise indicated.
2. LC-Bead: Use at exposed panel edges unless otherwise indicated.
3. L-Bead: Use where indicated.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Where indicated on Drawings.
3. Level 3: Where indicated on Drawings.
4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
5. Level 5: Where indicated on Drawings.
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.6 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 095123 - ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Acoustical tiles for interior ceilings.
 - 2. Fully concealed, direct-hung, suspension systems.
- B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For finishes to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size tiles equal to 2 percent of quantity installed.
 - 2. Suspension-System Components: Quantity of each concealed grid and exposed component equal to 2 percent of quantity installed.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical tiles, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical tiles, permit them to reach room temperature and a stabilized moisture content.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical tile ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 - 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical tile ceiling installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations:
 - 1. Suspended Acoustical Tile Ceilings: Obtain each type of acoustical ceiling tile and its suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Class A according to ASTM E 1264.
 - 2. Smoke-Developed Index: 50 or less.
- B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Indicate design designations from UL or from the listings of another qualified testing agency.

2.3 ACOUSTICAL TILES

2.4 ACOUSTICAL TILES <ACT-01>

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Armstrong World Industries, Inc; Ultima
 - 2. CertainTeed Corporation; Symphony M
 - 3. United States Gypsum Company; Mars
- B. Classification: Provide tiles complying with ASTM E 1264 for type, form, and pattern as follows:
 - 1. Type and Form: Type IV, mineral base with painted finish; Form 2, water felted.
 - 2. Pattern: E (lightly textured)
- C. Color: White.
- D. LR: Not less than 0.87
- E. NRC: Not less than 0.75.
- F. CAC: Not less than 35.
- G. Edge/Joint Detail: Beveled Tegral.
- H. Thickness: 3/4 inch
- I. Modular Size: 24 by 24 inches.
- J. Broad Spectrum Antimicrobial Fungicide and Bactericide Treatment: Provide acoustical tiles treated with manufacturer's standard antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D 3273 and evaluated according to ASTM D 3274 or ASTM G 21.

2.5 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension-System Standard: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635/C 635M.
- B. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
 - 1. Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing

according to ASTM E 488 or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

- a. Type: Postinstalled expansion anchors.
 - b. Corrosion Protection: Provide Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 for Class SC 1 service condition in wet environments and where ceilings are to be subjected to pressure washing.
2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing according to ASTM E 1190, conducted by a qualified testing and inspecting agency.
- C. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- diameter wire.
- D. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch-thick, galvanized-steel sheet complying with ASTM A 653/A 653M, G90 coating designation; with bolted connections and 5/16-inch-diameter bolts.

2.6 METAL SUSPENSION SYSTEM

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Armstrong World Industries, Inc.
 2. CertainTeed.
 3. United States Gypsum Company.
 4. Structural Classification: Heavy-duty system.
 5. Access: Upward and end pivoted or side pivoted, with initial access openings of size indicated below and located throughout ceiling within each module formed by main and cross runners, with additional access available by progressively removing remaining acoustical tiles.
 - a. Initial Access Opening: In each module, 24 by 24 inches.

2.7 ACCESSORIES

- A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

1. Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing according to ASTM E 488/E 488M or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.
 - a. Type: Postinstalled expansion anchors.
 - b. Corrosion Protection: Carbon-steel components zinc plated according to ASTM B 633, Class SC 1 (mild) service condition.
 2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing according to ASTM E 1190, conducted by a qualified testing and inspecting agency.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 2. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.106-inch-diameter wire.

2.8 METAL EDGE MOLDINGS AND TRIM

- A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations complying with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for of suspension-system runners.
1. Finish: Painted white.

2.9 ACOUSTICAL SEALANT

- A. Acoustical Sealant: As specified in Section 079219 "Acoustical Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing and substrates to which acoustical tile ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Examine acoustical tiles before installation. Reject acoustical tiles that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
- B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION OF SUSPENDED ACOUSTICAL TILE CEILINGS

- A. Install suspended acoustical tile ceilings according to ASTM C 636/C 636M and manufacturer's written instructions.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 - 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 - 8. Do not attach hangers to steel deck tabs.
 - 9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 10. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 - 11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical tiles.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 - 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
 - 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Install acoustical tiles in coordination with suspension system and exposed moldings and trim. Place splines or suspension-system flanges into kerfed edges of tiles so tile-to-tile joints are interlocked.
 - 1. Fit adjoining tiles to form flush, tight joints. Scribe and cut tiles for accurate fit at borders and around penetrations through ceiling.
 - 2. Hold tile field in compression by inserting leaf-type, spring-steel spacers between tiles and moldings, spaced 12 inches o.c.

3.4 ADJUSTING

- A. Clean exposed surfaces of acoustical tile ceilings, including trim and edge moldings. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace tiles and other ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095123

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY:

- A. This section includes
 - a. Resilient base and molding including accessories and miscellaneous materials.

1.3 SUBMITTALS

- A. All submittals shall be in pdf format.
- B. Product Data: For each type of product indicated.
- C. Samples for Initial Selection: For each type of product indicated.
- D. Product Schedule: For resilient products.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.6 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products for 48 hours before installation, during installation, and for 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer.
- C. Install resilient products after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish not less 10 linear feet of each type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE:

- A. Resilient Base:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by:
 - a. Mannington Commercial
 - b. Roppe Corporation, USA.
 - c. Johnsonite
- B. Resilient Base Standard: ASTM F 1861.
 - 1. Material Requirement: Type TS (rubber, vulcanized thermoset).
 - 2. Manufacturing Method: Group I (solid, homogeneous).
 - 3. Style: Standard toe (cove) base (5/8").
- C. Minimum Thickness: 1/8 inch
- D. Height: 4 inches.
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Job formed.
- G. Inside Corners: Job formed.

- H. Colors and Patterns.
 - 1. As indicated on Drawings

2.2 RESILIENT MOLDING ACCESSORY

- A. Resilient Molding Accessory:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Mannington Commercial.
 - b. Roppe Corporation, USA.
 - c. Johnsonite
- B. Description: Reducer strip for resilient floor covering joiner for tile and carpet transition strips.
- C. Material: Rubber.
- D. Profile and Dimensions: As indicated.
- E. Colors and Patterns: As selected by Architect from full range of industry colors.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions.
- C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are same temperature as the space where they are to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. Job-Formed Corners:
 - 1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends.
 - 2. Inside Corners: Use straight pieces of maximum lengths possible.

3.4 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet and resilient floor covering that would otherwise be exposed.
- C. Resilient Stair Accessories:
 - 1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.

- D. Tightly adhere to substrates throughout length of each piece

3.5 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. 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.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION 096513

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes modular carpet tile.
- B. Related Requirements:
 - 1. Section 096513 "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.
 - 2. Section 090561.13 "Moisture Vapor Emission Control" for concrete substrate moisture mitigation.

1.3 SUBMITTALS

- A. All submittals shall be in pdf format.
- B. Product Data: For each product indicated.
- C. Shop Drawings: Show the following:
 - 1. Carpet tile type, color, and dye lot.
 - 2. Pattern of installation.
 - 3. Insets and borders.
 - 4. Edge, transition, and other accessory strips.
 - 5. Transition details to other flooring materials.
- D. Samples: For each color and texture required.
 - 1. Carpet Tile: Full-size Sample.
 - 2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- long Samples.
- E. Product Data:
 - 1. For carpet tile, documentation indicating compliance with testing and product requirements of Carpet and Rug Institute's "Green Label Plus" program.

- 2. For installation adhesive, including printed statement of VOC content.
- F. Product Schedule: For carpet tile. Use same designations indicated on Drawings.
- G. Maintenance data.

1.4 INSTALLATION QUALITY ASSURANCE

- A. Contractor to be specialty contractor normally engaged in this type of work and shall have three (3) years minimum documented experience in the installation of these materials and participation in manufacturer's environmental program including responsible carpet removal, recycling and installation.
- B. Contractor and his/her sub-contractors must be approved by the architect and/or the carpet manufacturer.
- C. Contractor will be responsible for the proper product installation, including floor preparation in all the areas indicated in the drawings to receive carpet. The carpet installation standard will be as listed in The Carpet and Rug Institute's Standard for Installation of Commercial Carpet CRI-104, the standard that establishes the minimum installation procedures.
- D. Flooring manufacturer to provide owner a written warranty that guarantees the completed installation to be free from defects in materials and workmanship for a period of no less than two (2) years after job completion.
- E. Carpet manufacturer to provide field service experts to assist in project start-up as required by the job. Manufacturer will notify owner, architect, general prime contractor or another designated contact in any installation instructions is not followed.
- F. Qualifications of Installers: All work shall be done by installation firms specializing in commercial carpet installation. It is required, that the firm shall be a member of the Floor Covering Installation Contractors Association (FCICA) and/or certified by the Floor Covering Installation Board (FCIB).
- G. Waste Reduction: All polyethylene roll wrap shall be collected and recycled.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to installation site in the manufacturer's original packaging. Packaging to contain manufacturer's name, identification number and related information.
- B. Product to be delivered as required by manufacturer.
- C. All materials are to be delivered (24 hours) before the start of installation and stored in (above 65 degrees F and below 95 degrees F), dry location, safe from damage and soiling.
- D. Delivered and stored materials must be available for inspection as required by owner, architect, general contractor and/or the manufacturer.

1.6 PROJECT CONDITIONS

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."
- B. Substrate Conditions: Use the current test methods described below to determine the dryness as required to ensure initial and long-term success:
1. Comply with ASTM F2170 testing procedures.
 2. Comply with ASTM F1869 testing procedures (see #4 below).
 3. Engage a third party testing agent to conduct in-site relative humidity testing (ASTM F2170) or anhydrous calcium chloride testing (ASTM F1869), whichever is recommended by resilient flooring manufacturer. Perform minimum of 3 tests for the first 1000 square feet and at least one test for each additional 1000 square feet, to ensure concrete internal relative humidity does not exceed 85% or moisture vapor emissions do not exceed 10.0 lb per square feet within a 24 hour period, depending on resilient flooring manufacturer's recommendations.
 4. Only use the ASTM F 1869, anhydrous calcium chloride test of vapor emission if recommended by the flooring manufacturer, otherwise, ASTM F 2170 should be used.
 5. Contingency for high moisture readings: if at the time of testing the moisture readings are in excess of 85% internal relative humidity or 10.0 lb moisture vapor emissions, the Architect will direct the testing service to initiate a petrographic analysis to determine the water/cement ratio and if sufficient hydration has taken place. If the specifications were not followed in their entirety, water/cement ratio (as specified), and/or the concrete surface has been inadequately hydrated, the Contractor responsible for the placement of the cement shall be responsible for the costs associated with the petrographic analysis and subsequent remediation requirements.
- C. The Contractor shall verify in writing to the Owner, a minimum of thirty (30) days prior to scheduled resilient flooring installation, the following substrate conditions:
1. Moisture: Maximum of 85% internal relative humidity tested in accordance with the current ASTM F2170 or maximum of 10.0 lb moisture vapor emission rate tested in accordance with the current ASTM F1869.
 2. Alkalinity (ASTM F710): Minimum 7.0 pH and Maximum 10.0 pH.
 3. Suitability of Substrate Surface: Ensure that substrate surface is sound, smooth and flat to 1/8 inch in 10 feet. It is the Contractor's responsibility to meet this 1/8" in 10 feet requirement.
 4. Letter of Certification from adhesive manufacturer and moisture remediation sealer manufacturer that both products are compatible with one another.
- D. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use. Carpet installation shall not commence until painting and finishing work is complete and ceiling and overhead work is tested, approved and completed.
- E. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

1.7 WARRANTY

- A. Warranties must be the standard, printed warranties on the carpet manufacturer's letterhead. All warranty items to be full term, not pro-rated for the indicated period. All warranties must be issued by the manufacturer as standard published warranties on all types of carpet within this document. If the product fails to perform as warranted when properly installed and maintained according to procedures, the affected area will be repaired or replaced at the expense of the manufacturer. The carpet manufacturer will provide standard published written performance warranties for the following:
1. Lifetime warranty against excessive surface wear. Excessive wear means no more than 10% loss of pile fiber weight measured before and after use as tested under ASTM D-3936.
 2. Lifetime static protection, meaning built-in protection below 3.0 kv as tested under AATCC-134
- B. The Carpet manufacturer shall warrant carpet manufactured with Nexus Modular backing for the useful life of the original installation against product failure from:
1. Tuft Bind (edge ravel, yarn pulls, zippering)
 2. Delamination
 3. Lifetime Moisture Barrier
 4. Lifetime Dimensional Stability
- C. All warranties to be sole source responsibility of the carpet manufacturer. Second source warranties that involve parties other than the carpet manufacturer are unacceptable.
- D. Warranties shall not be written only for this purchase or purchaser and shall be standard issue nationally official documents.

1.8 EXTRA MATERIALS

- A. Provide five percent (5%) extra material for shelf stock of carpeting of each color and type specified. Deliver as requested to owner's storage. Recycle waste and unusable scrap through manufacturer's environmental program.

PART 2 - PRODUCTS

2.1 CARPET TILE:

- A. Products: Subject to compliance with requirements, provide the following:
1. Manufacturer: As indicated on drawings.
 - a. Size: As indicated on drawings.
 - b. Color & Pattern: As indicated on drawings.
- B. Performance Characteristics: As follows:

1. Certified test reports shall be submitted by the carpet manufacturer, for all performance assurance specifications listed below. All submitted test numbers should represent average for standard production goods.
2. Required Test Reports:
 - a. Pill Test/ DOC-FF-1-70 (ASTM D-2589) – Requirement: Pass
 - b. Flooring Radiant Panel / ASTM E-648 – Requirement: Pass
 - c. CRI VOC Chamber Test/Indoor Air Quality test (CRI-IAQ) Green Label Plus Test
 - d. Lightfastness: Rating of not less than 5 on International Grey Scale after 40 SFU's when tested in accordance with AATCC Test Method 16E.
 - e. Crockfastness: Minimum stain rating on International Grey Scale of not less than 5 wet or dry when tested in accordance with AATCC Test Method 165.
 - f. Atmospheric Fading: Burned Gas shall not be less than 5 on International Grey Scale after two cycles on each test as per AATCC Test Method 129 Ozone and AATCC Test Method 23.

2.2 INSTALLATION ACCESSORIES

- A. Carpet Tile Manufacturer recommended adhesive or comparable product that meet the specification for Adhesives below.
- B. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- C. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.
 1. Carpet Tile Manufacturer recommended adhesive or comparable product that meet the specifications for Adhesives below.
 - a. 85% Relative Humidity (ASTM F2170).
 - b. 10.0 lbs. per 1000 sq. ft. per 24-hour period (ASTM F 1869).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, moisture vapor emission rate, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness

- characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
2. Allowable Variation in Surface Plane of Flooring: Do not exceed 1/8 inch in 10 feet from level or slope indicated when tested with a 10-foot straightedge.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Concrete Substrates: Prepare according to ASTM F 710.
1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
 3. Alkalinity and Adhesion Testing: Contractor shall engage a third-party testing agency to perform tests recommended by the floor covering manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 10 pH.
 4. Moisture Testing: Contractor shall engage a third-party testing agency to perform tests recommended by the floor covering manufacturer. Each test area shall exceed 1000 sq. ft., and no fewer than three tests in each installation area shall be performed with test areas evenly spaced in installation areas.
 - a. Anhydrous Calcium Chloride Test: ASTM F 1869. Provide Anhydrous Calcium Chloride Test only if required by flooring manufacturer. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of recommended by floor covering manufacturer.
 - b. Relative Humidity Test: Using in-situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum percent relative humidity level measurement recommended by the floor covering manufacturer
 - c. Contractor shall provide the flooring manufacturer's high moisture adhesive within their base bid. Moisture mitigation, if required, shall be provided by the Contractor via unit pricing established on the bid form.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. General Contractor to remove all existing floor finishes. Contractor to remove adhesives / mortar bed remnants and prep existing floor to receive new flooring finish. Where required (i.e. in areas where asbestos tile was chemically removed), Contractor shall provide appropriate primer to ensure proper adhesion.
- C. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider and protrusions more than 1/32 inch, unless more stringent requirements are required by manufacturer's written instructions.

- D. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
 - 1. Moisture Testing: Engage a third-party testing agency to perform tests recommended by floor covering manufacturer. Proceed with installation only after substrates pass testing.
 - a. Perform relative humidity test using in-situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 85% relative humidity level measurement. If moisture exceeds 85% relative humidity rate, initiate contingency for high moisture readings below. Comply with Section 090561.13 Concrete Moisture Vapor Emission (MVE) control systems.
 - b. Perform anhydrous calcium chloride test, ASTM F 1869 for vapor emission, only if specified by flooring manufacturer. Proceed with installation only after substrates have maximum of 10 lb moisture-vapor-emission rate. If moisture exceeds the 10 lb moisture-vapor-emission rate, initiate contingency for high moisture readings below. Comply with Section 090561.13 Concrete Moisture Vapor Emission (MVE) control systems.
 - c. Contingency for high moisture readings: if at the time of testing the moisture readings are in excess of 10 lb moisture vapor emissions or 85% relative humidity, the Architect will direct the third party testing service to initiate a petrographic analysis to determine the water/cement ratio and if sufficient hydration has taken place. If the specifications were not followed in their entirety, water/cement ratio (as specified), and/or the concrete surface has been inadequately hydrated, the Contractor responsible for the placement of the cement shall be responsible for the costs associated with the petrographic analysis and subsequent remediation requirements.
 - d. If moisture related failure occurs, the Relative Humidity Test, ASTM F 2170, results will be the qualifying standard.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Pattern installation: Verify with Architect.
- H. Stagger joints of carpet tiles so carpet tile grid is offset from access flooring panel grid. Do not fill seams of access flooring panels with carpet adhesive; keep seams free of adhesive.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Steel and iron.
 - 2. Gypsum board.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 2. Indicate VOC content.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
1. Submit Samples on rigid backing, 8 inches square.
 2. Apply coats on Samples in steps to show each coat required for system.
 3. Label each coat of each Sample.
 4. Label each Sample for location and application area.
- C. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Benjamin Moore & Co.
 2. M.A.B. Paints.
 3. Pratt & Lambert.

4. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. VOC Content: Products shall comply with VOC limits meeting federal guidelines.
- D. Colors: As indicated in a color schedule.

2.3 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (Clay and CMUs): 12 percent.
 - 3. Wood: 15 percent.

4. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.
- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- H. Wood Substrates:
 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 2. Sand surfaces that will be exposed to view, and dust off.
 3. Prime edges, ends, faces, undersides, and backsides of wood.
 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in occupied spaces:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by Architect.
 - 2. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
 1. Institutional Low-Odor/VOC Latex System MPI INT 5.1S:
 - a. Prime Coat: Primer, rust inhibitive, water based MPI #107.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (MPI Gloss Level 5), MPI #147.
 2. Alkyd Dry-Fall System MPI INT 5.1D:
 - a. Prime Coat: Primer, alkyd, quick dry, for metal, MPI #76.
 - b. Prime Coat: Primer, alkyd, anti-corrosive, for metal, MPI #79.
 - c. Topcoat: Dry fall, alkyd, flat, MPI #55.
- B. Gypsum Board Substrates:
 1. Institutional Low-Odor/VOC Latex System MPI INT 9.2M:
 - a. Prime Coat: Primer sealer, interior, institutional low odor/VOC, MPI #149.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.

- c. Topcoat: Latex, interior, institutional low odor/VOC (MPI Gloss Level 3), MPI #145.

END OF SECTION 099123

SECTION 123623.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes plastic-laminate-clad countertops

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, electrical switches and outlets, and other items installed in plastic-laminate countertops.
- C. Samples for Initial Selection:
 - 1. Plastic laminates.

1.4 QUALITY ASSURANCE

- A. Unless otherwise indicated, comply with AWI's Architectural Woodwork Quality Standards for grades of interior architectural woodwork indicated for construction, finishes, installation, shop drawings, and other requirements. If there are questions or conflicts between the standards indicated and other language in this section, notify the architect in writing prior to bid.
- B. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Fabricator must have a minimum of 5 years experience and have record of successful in-service performance of other projects to meet the Owner's requirements.

- C. Installer Qualifications: Installer shall have skilled workers, must have minimum of 5 years experience and have a record of successful in-service performance of other projects to meet the Owner's requirements.
- D. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver countertops until painting and similar operations that could damage countertops have been completed in installation areas. If countertops must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install countertops 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.
- B. Field Measurements: Where countertops are 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.
- C. Established Dimensions: Where countertops are indicated to fit to other construction, establish dimensions for areas where countertops are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE COUNTERTOPS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades indicated for construction, installation, and other requirements.
- B. Grade: Custom.
- C. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGS.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Wilsonart International; Div of Premark International, Inc.
 - b. Formica Corporation
 - c. Nevamar

- D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - a. As indicated on drawings
- E. Edge Treatment: PVC edging, match laminate cladding on horizontal surfaces
- F. Core Material: Medium-density fiberboard.
- G. Core Material at Sinks: Shop sanded exterior grade plywood.
- H. Core Thickness: 3/4 inch.
 - 1. Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.
- I. Backer Sheet: Provide plastic-laminate backer sheet, NEMA LD 3, Grade BKL, on underside of countertop substrate.

2.2 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Recycled Content of Medium-Density Fiberboard and Particleboard: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 50 percent.
 - 2. Medium-Density Fiberboard: ANSI A208.2, Grade 130, made with binder containing no urea formaldehyde.
 - 3. Particleboard: ANSI A208.1, Grade M-2, made with binder containing no urea formaldehyde.
 - 4. Softwood Plywood: DOC PS 1.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Materials, General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
 - 1. Use treated materials that comply with requirements of referenced woodworking standard. Do not use materials that are warped, discolored, or otherwise defective.
 - 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.

3. Identify fire-retardant-treated materials with appropriate classification marking of qualified testing agency in the form of removable paper label or imprint on surfaces that will be concealed from view after installation.
- B. Fire-Retardant-Treated Lumber and Plywood: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
1. Kiln dry lumber and plywood after treatment to a maximum moisture content of 19 and 15 percent, respectively.
 2. For items indicated to receive a stained or natural finish, use organic resin chemical formulation.
 3. Mill lumber after treatment within limits set for wood removal that do not affect listed fire-test-response characteristics, using a woodworking shop certified by testing and inspecting agency.
 4. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
- C. Fire-Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.
1. For panels 3/4 inch thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of rupture, 1600 psi (11 MPa); modulus of elasticity, 300,000 psi (2070 MPa); internal bond, 80 psi (550 kPa); and screw-holding capacity on face and edge, 250 and 225 lbf (1100 and 1000 N), respectively.
 2. For panels 13/16 to 1-1/4 inches (20 to 32 mm) thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi (9 MPa); modulus of elasticity, 250,000 psi (1720 MPa); linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf (1100 and 780 N), respectively.

2.4 ACCESSORIES

- A. Grommets for Cable Passage through Countertops: 2-inch OD, molded-plastic grommets and matching plastic caps with slot for wire passage.
1. Product: Subject to compliance with requirements, provide "SG series" by Doug Mockett & Company, Inc.

2.5 MISCELLANEOUS MATERIALS

- A. Adhesives: Do not use adhesives that contain urea formaldehyde.

- B. VOC Limits for Installation Adhesives and Sealants: Use products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Wood Glues: 30 g/L.
 - 2. Multipurpose Construction Adhesives: 70 g/L.
 - 3. Structural Wood Member Adhesive: 140 g/L.
 - 4. Architectural Sealants: 250 g/L.

2.6 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- B. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets. Ease edges to radius indicated for the following:
 - 1. Solid-Wood (Lumber) Members: 1/16 inch unless otherwise indicated.
- C. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
 - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
- D. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.
- B. Before installing countertops, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
 - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items.
 - 2. Seal edges of cutouts by saturating with varnish.
- C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
 - 1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.
- D. Install countertops level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- E. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
 - 3. Seal junctures of tops, splashes, and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective countertops, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean countertops on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 123623.13