

# PROJECT MANUAL

AND

# SPECIFICATIONS

FOR THE

## JACKSON COUNTY Senior Citizens' Center Additions and Renovation



**Jefferson, Georgia**

**July 17, 2023**

Prepared by



**CARTER WATKINS  
ASSOCIATES**  
ARCHITECTS,  
INC.



ALLEN-SMITH CONSULTING, INC.

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# **INVITATION TO BID**

**BID CONTROL NUMBER ITB 230400**



**Renovations and Additions to the Jackson County Senior Center**

**Jackson County Board of Commissioners**

**Public Works Department**

**Publish Date: July 17, 2023**

**Bid Opening Date & Time: September 7, 2023 at 2:00 pm, local time pertaining  
Questions Deadline Date & Time: August 30, 2023 at 5:00 pm**

**Jackson County Board of Commissioners**

**67 Athens Street**

**Jefferson, GA 30549**

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**Bid Control Number ITB 230400**

- 1. Invitation to Bid**
- 2. Instructions /General Terms and Conditions**
- 3. Bid Schedule/Response Form**
- 4. Attachments**

DATE: July 17, 2023

TO: General Contractors

SUBJECT: Request for Bid for Renovations and Additions to the Jackson County Senior Center, Jackson County

**INQUIRIES REGARDING REQUEST FOR BID SHOULD BE MADE TO KENNETH MORRIS, PURCHASING MANAGER, (706)367-4174**

Jackson County Board of Commissioners (hereafter referred to as Jackson County) is requesting bids for Renovations and Additions to the Jackson County Senior Center, Jefferson.

**Each bidder must deposit with his bid a Bid Bond for 5% of the total bid. Performance and Payment Bonds in the amount for 100% of the contract price will be required if the contract is awarded.**

**One (1) original and three (3) copies of the Request for Bid must be submitted. Bids must be sealed, marked with the bidder's name and address and Labeled: ITB 230400, "Renovations and Additions to the Jackson County Senior Center" and delivered to:**

Jackson County Board of Commissioners  
Attention: Kenneth Morris, Purchasing Manager  
67 Athens Street  
Jefferson, Georgia 30549

No later than September 7, 2023 at 2:00 PM EST.

Bid Packages can be obtained by sending an email to Mr. Kenneth Morris, Jackson County Budget and Purchasing Manager, [kmorris@jacksoncountygov.com](mailto:kmorris@jacksoncountygov.com). There will be a mandatory pre bid conference held on Thursday, August 24, 2023 at 11:00 AM EST at the Senior Center, 151 Stan Evans Drive, Jefferson, GA.

This project is funded, in part by U.S. Department of Housing & Community Development (HUD) Community Development Block Grant (CDBG) funds and will implement CDBG Clauses and Conditions, Davis Bacon Wage Rates, and Section 3 Employment procedures. (refer to complete documents in the Project Manual). A qualified interpreter for the hearing impaired is available upon request at least 10 (ten) days in advance of the bid opening date. Please call (706)367-6312 for more information. This service is in compliance with the American with Disabilities Act (ADA).

This is a Section 3 Covered Project under the HUD Act of 1968 and Section 3 Residents and Business Concerns are encouraged to apply.

The County is committed to providing all persons with equal access to its services, programs, activities, education, and employment regardless of race, color, national origin, religion, sex, familial status, disability or age. Jackson County reserves the right to reject any and all bid submittals, to waive any technicalities or irregularities and to award the bid based on the highest and best interest of Jackson County.



## Jackson County

### GENERAL INSTRUCTIONS FOR BIDDERS

**I. PURPOSE:**

The intent and purpose of this Bid Request is to request services for the Jackson County Board of Commissioner, hereinafter referred to as Jackson County for renovations and additions to the Senior Center.

**II. SCOPE OF SERVICE:**

A. WORK INCLUDED:

See attached specification.

B. QUALITY OF WORKMANSHIP: All work shall be quality work performed according to the standards of the industry, and to the complete satisfaction of Jackson County.

C. PERSONNEL QUALIFICATIONS:

Jackson County reserves the right to refuse to accept services from any personnel deemed by Jackson County to be unqualified, disorderly, or otherwise unable to perform assigned work.

All contractors wishing to be identified as a Section 3 Business - Concern must include a completed (as well as signed and notarized) Section 3 Business Concern, Previous Certificate of Compliance and Action Plan with their bid proposal.

In reviewing the bid proposals, any contractors that are identified as qualified Section 3 Business Concerns should be reviewed and if legitimate, granted a Preference in contracting, all other things being equal.

D. DETAILED SPECIFICATIONS: See attached. This project will be under the supervision of the engineer who will be inspecting all work completed under this contract.

1. Upon being awarded the contract by Jackson County, the approved contractor will execute a contract with Jackson County to provide services. The contractor agrees to perform all work in accordance with the bid schedule and set bid prices as outlined in their signed proposal. The prices submitted in the bid proposal will be valid until the completion of all projects originally listed in the bid proposal.

2. The approved contractor agrees to commence work within thirty (30) days of receiving the Notice to Proceed and will complete all the original work as outlined in this Bid Request within the time specified. Any additional work



will be discussed and a reasonable start and completion date will be negotiated.

3. Jackson County will only pay invoices that have been reviewed and approved by the engineer for the quantities submitted for payment.
- E. **MATERIAL SPECIFICATIONS:** All material used in the performance of this contract must meet state and local requirements for use by an approved vendor. The contractor will be responsible for verifying this information with the engineer.
- F. **SCHEDULING AND COORDINATION:** It is the responsibility of the contractor to coordinate all work schedules and inspections with the Jackson County Senior Center and the engineer. Failure to do so may result in the delay of processing invoices for payment.
- G. **OTHER REQUIREMENTS:** **A Bid Bond for 5% of the base bid on the bid form must be submitted with the bid. Performance and Payment Bonds in the amount of 100% of the contract price will be required if the contract is awarded.**
- H. All contractors wishing to be identified as a Section 3 Business Concern must include a completed (as well as signed and notarized) Section 3 Business Concern, Previous Certificate of Compliance and Action Plan with their bid proposal.  
“In reviewing the bid proposals, any contractors that are identified as qualified Section 3 Business Concerns should be reviewed and if legitimate, granted a Preference in contracting, all other things being equal.”

**III. MANDATORY PRE-BID CONFERENCE:** There will be a mandatory pre bid conference held on Thursday, August 24, 2023 at 11:00 AM EST at the Senior Center, 151 Stan Evans Drive, Jefferson, GA. Bidders who do not attend will not be considered for the job award. Questions concerning this bid package or the bid process should be directed to Kenneth Morris at [kmorris@jacksoncountygov.com](mailto:kmorris@jacksoncountygov.com). Technical question concerning the work being requested in this BID REQUEST should be submitted to [info@carterwatkins.com](mailto:info@carterwatkins.com) All questions should be submitted in writing no later than 5:00 pm on August 30, 2023 so that an appropriate addendum can be created and sent to all vendors prior to September 1, 2023.

**IV. GENERAL TERMS AND CONDITIONS:**

- A. **PURCHASING ORDINANCE:** This Invitation to Bid (ITB) is subject to the provisions of the Jackson County Purchasing Ordinance and any revisions thereto, which are hereby incorporated into this contract in their entirety except as amended or superseded herein.
- B. **MANDATORY USE OF JACKSON COUNTY FORM AND TERMS AND CONDITIONS:** Failure to submit a bid on the official Jackson County form provided for that purpose shall be a cause for rejection of the bid. Return of the complete document is required. Modification of or additions to any portion of the invitation may

be cause for rejection of the bid; however, Jackson County reserves the right to decide, on a case by case basis, in its sole discretion, whether or not to reject such a bid as non-responsive.

- C. PRECEDENCE OF TERMS: Except for paragraphs A, B, C, J, K and N of the General Terms and Conditions, which shall apply in all instances, in the event there is a conflict between the General Terms and Conditions and any Special Terms and Conditions for use in a particular procurement, the Special Terms and Conditions shall prevail.
- D. CLARIFICATION OF TERMS: If any prospective bidder has questions about the specifications or other bid documents, the prospective bidder should contact the Purchasing Manager whose name appears on the title page of the invitation, no later than seven days before the opening date. Any revisions to the invitation will be made only by addendum issued by the Purchasing Manager.
- E. TESTING/INSPECTION: Jackson County reserves the right to conduct any test or inspection it may deem advisable to assure materials and services conform to the specification.
- F. PAYMENT TERMS: Any payment terms requiring payment in less than 30 days will be regarded as requiring payment 30 days after invoice or delivery, whichever occurs last. This shall not affect offers of discounts for payment in less than 30 days, however.
- G. INVOICES: Invoices for services ordered, delivered and accepted by Jackson County shall be submitted by the contractor direct to the payment address shown on the contract.
- H. DEFAULT: In case of failure to deliver goods or services in accordance with the contract terms and conditions, Jackson County, after due oral or written notice, may procure substitute goods or services from other sources and hold the contractor responsible for any resulting additional purchasing and administrative costs. This remedy shall be in addition to any other remedies, which Jackson County may have.
- I. ASSIGNMENT OF CONTRACT: A contract shall not be assignable by the contractor in whole or in part without the written consent of Jackson County.
- J. ETHICS IN PUBLIC CONTRACTING: By submitting their bids, all bidders certify that their bids are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other bidder, supplier, manufacturer or subcontractor in connection with their bid, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit or money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

- K. DEBARMENT STATUS: By submitting their bids, all bidders certify that they are not currently debarred from bidding on contracts by any agency of the State of Georgia, nor are they an agent of any person or entity that is currently debarred from submitting bids on contracts by any agency of the State of Georgia.
- L. NON-COLLUSION CERTIFICATION: Bidder declares that the bid is not made in connection with any other bidder submitting a bid for the same project, and that the bid is bona fide and is in all respects fair and without collusion or fraud.
- M. APPLICABLE LAW AND COURTS: Any contract resulting from this BID REQUEST shall be governed in all respects by the laws of the State of Georgia and any litigation with respect thereto shall be brought in the courts of the State of Georgia. The contractor shall comply with applicable federal, state and local laws and regulations.
- N. QUALIFICATION OF BIDDERS: Jackson County may make such reasonable investigations as deemed proper and necessary to determine the ability of the bidder to perform the work/furnish the items and the bidder shall furnish to Jackson County all such information and data for this purpose as may be requested. Jackson County reserves the right to inspect bidder's physical plant prior to award to satisfy questions regarding the bidder's capabilities. Jackson County further reserves the right to reject any bid if the evidence submitted by, or investigations of, such bidder fails to satisfy Jackson County that such bidder is properly qualified to carry out the obligations of the contract and to complete the work/furnish the items contemplated therein.
- O. WITHDRAWAL OF BID DUE TO ERRORS:
1. The bidder shall give notice in writing of his claim of right to withdraw his bid without penalty due to an error within two (2) business days after the conclusion of the bid opening procedure. Bids may be withdrawn from consideration if the price was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of the bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and material used in the preparation of the bid sought to be withdrawn. The bidder's original work papers shall be the sole acceptable evidence of error and mistake if he elects to withdraw his bid. If a bid is withdrawn under the authority of this provision, the lowest remaining responsive bid shall be deemed low bid.
  2. No bidder who is permitted to withdraw a bid shall, for compensation, supply any material or labor or perform any subcontract or other work agreement for the person of firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid was submitted.

3. Supplier has up to forty-eight (48) hours to notify the Jackson County Purchasing Office of an obvious clerical error made in calculation of bid in order to withdraw a bid after bid opening. Withdrawal of bid for this reason must be done in writing within the forty-eight (48) hour period. Suppliers who fail to request withdrawal of bid by the required forty-eight (48) hours shall automatically forfeit bid bond (if one was required). Bid may not be withdrawn otherwise.
  4. Bid withdrawal is not automatically granted and will be allowed solely at Jackson County's discretion.
- P. LATE OFFERS: Jackson County will not be responsible for or consider late receipt of bids.
- Q. EO/AA STATEMENT: Jackson County, an Equal Opportunity Affirmative Action institution covered by Presidential Executive Order 11246 as amended, advises all contractors, subcontractors, vendors and suppliers that direct or indirect receipt of federal funds may require appropriate action on their part.
- R. ILLEGAL IMMIGRATION REFORM AND ENFORCEMENT ACT OF 2011  
Vendors submitting a response to this RFP must complete the Contractor Affidavit under O.C.G.A. §13-10-91(b)(1) which is provided with the RFP package to verify compliance with the Illegal Immigration Reform and Enforcement Act of 2011.
- A. The form must be signed by an authorized officer of the contractor or their authorized agent.
  - B. The form must be notarized.
  - C. The contractor will be required to have all subcontractors and sub-subcontractors who are engaged to complete physical performance of services under the final contract executed between the County and the contractor complete the appropriate subcontractor and sub-subcontractor affidavits and return them to the County a minimum of five (5) days prior to any work being accomplished by said subcontractor or sub-subcontractor. Format for this affidavit can be provided to the contractor if necessary.

**V. SPECIAL TERMS AND CONDITIONS:**

- A. AVAILABILITY OF FUNDS: It is understood and agreed between the parties herein that Jackson County shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this agreement.
- B. AWARD OF CONTRACT: Jackson County will make award to the lowest responsive and responsible bidders unless there is a case for exception as listed in Section 2-155 (j) of Jackson County's Purchasing Ordinance. Due consideration will

be given to price, quality as judged by tests and previous experience, and the ability of the bidders to render required services. Jackson County reserves the right to conduct any test it may deem advisable and to make all evaluations. Jackson County also reserves the right to reject any or all bids, in whole or in part, to waive informalities and to delete items prior to making the award, whenever it is deemed in the sole opinion of Jackson County to be in its best interest.

- C. BID ACCEPTANCE PERIOD: This bid shall be binding upon the bidder for 60 calendar days following the bid opening date. Any bid on which the bidder shortens the acceptance period may be rejected.
- D. BID PRICES: Bid prices submitted by the Contractor must remain firm for the entire length of the initial bid period and/or until the original list of projects as outlined in the specifications are completed.
- E. CANCELLATION OF CONTRACT: Jackson County reserves the right to cancel and terminate any resulting contract, in part or in whole, without penalty, upon 60 days written notice to the contractor. Any contract cancellation notice shall not relieve the contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.
- F. CHANGES: By written notice to the contractor, Jackson County may from time to time make changes, within the general scope of the contract, in the goods or services to be provided by the contractor.
- G. CONTRACT DOCUMENTS: The contract entered into by the parties shall consist of this Invitation To Bid, the signed bid submitted by the contractor, the Jackson County Contract Form, General Terms and Conditions, Special Terms and Conditions, Specifications and Attachments, including all modifications thereof, all of which shall be referred to collectively as the Contract Documents.
- H. CONTRACT PERIOD: The contract period is defined above in paragraph II.D.1.
- I. IDENTIFICATION OF BID ENVELOPE: The signed bid should be returned in a separate envelope or package, sealed and identified as follows:

From:

\_\_\_\_\_  
Name of Bidder

\_\_\_\_\_  
Bid Due Date

\_\_\_\_\_  
Time

\_\_\_\_\_  
Street or Box Number

\_\_\_\_\_  
Bid Number

---

City, State, Zip Code

---

Bid Title

The envelope should be addressed to Jackson County Board of Commissioners, Attention: Kenneth Morris, Purchasing Manager, 67 Athens Street, Jefferson, GA, 30549.

If a bid not contained in the special envelope is mailed, the bidder takes the risk that the envelope even if marked as described above, may be inadvertently opened and the information compromised which may cause the bid to be disqualified. Bids may be hand delivered to the office of the Purchasing Department issuing the invitation at the location given above. No other correspondence or other bids should be placed in the envelope.

J. INDEMNIFICATION: The contractor agrees to indemnify, defend and hold harmless Jackson County and their officers, agents, and employees from any claims, damages and actions of any kind or nature whether at law or in equity, arising from or caused by the use of any materials, goods, or equipment of any kind or nature furnished by the contractor/any services of any kind or nature provided by the contractor.

K. INDEPENDENT CONTRACTOR: The contractor shall not be an employee of Jackson County, but shall be an independent contractor. Nothing in this agreement shall be construed as authority for the contractor to make commitments, which shall bind Jackson County, or to otherwise act on behalf of Jackson County, except as Jackson County may expressly authorize in writing.

L. INSPECTION OF WORK SITE: Contractors desiring to submit a proposal for this BID REQUEST are encouraged to visit the sites listed. Claims, as a result of failure to do so, will not be considered by Jackson County.

M. INSURANCE:

1. The contractor shall provide Jackson County a Certificate of Insurance prior to the start of any work and agrees to maintain such insurance until the completion of the contract. The minimum limits of liability shall be:

A. Workers' Compensation - In compliance with Georgia State Law

B. Broad Form Comprehensive General Liability, \$1,000,000.00, to include:

1. Premises – Operations
2. Products / Completed Operations
3. Contractual
4. Personal Injury
5. Owners and Contractors Protective

2. Jackson County reserves the right to require higher limits on any contract provided notice of such requirements is stated in the proposal for such contract. Included in the certificate of insurance shall be a hold harmless agreement saving Jackson County harmless from any liability from the contractor or from any subcontractors or by anyone directly or indirectly employed by either. Jackson County is to be named as additional insured.

A 30-day notice of cancellation or non-renewal in writing shall be furnished by certified mail to the certificate holder at the address indicated on the face of this form. Also, when deemed necessary, the contractor will provide explosion, collapse and underground coverage (X, C and U coverage).

The contractor agrees to be responsible for, indemnify and save harmless Jackson County and their representatives from the payment of all sums of money by reason of any claim against Jackson County or their representatives under the Workmen's Compensation Act, and by reason of all or any other occurrences resulting in bodily injury or property damage that may happen to occur upon or about said work. The contractor agrees that it will, at all times, and at least for one year after the completion of the work, indemnify and save harmless Jackson County against liabilities resulting from bodily injury or property damage directly or indirectly arising out of the performance or nonperformance of the contract.

3. ALL BIDDERS PROVIDE THE FOLLOWING INFORMATION:

NAME OF INSURANCE CARRIER:

NAME OF INSURANCE AGENT:

TELEPHONE NUMBER:

BROAD FORM COMPREHENSIVE

GENERAL LIABILITY LIMIT: \$

AUTOMOBILE LIABILITY LIMIT: \$

POLICY EXPIRATION DATE:

If a bidder fails to provide all the above information or does not indicate an amount of coverage, the bidder's signature on this invitation constitutes certification that, if the bidder is awarded the contract, the bidder shall obtain the necessary coverage as specified within ten days of notification of award of the contract.

If at any time or times any claim or claims shall be made to Jackson County by a subcontractor or other persons for any money due for any work, labor or material done upon or supplied upon the work herein contracted for, done for, furnished, or supplied, to the party of the first part, Jackson County may retain such amount as may be due, or may thereafter become due under this contract, or may pay the same when said claim shall thereafter be

finally established in court, and such amount is hereby assigned to Jackson County to pay such claim or claims, such payment to be done when so established, but the contractor shall not be entitled to demand or receive payment of this agreement until all disputes, disagreements, and questions between the parties herein affecting the right to any portion of the amount claimed, shall have been settled as above provided for, and Jackson County is hereby authorized to deduct from the said amount any money due it upon any account or claim.

N. PROTECTION OF PERSONS AND PROPERTY:

1. The contractor shall take every precaution at all times for the protection of persons and property, including Jackson County's employees and property and its own.
2. The contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work under this contract.
3. The contractor shall continuously maintain adequate protection of all work from damage and shall protect Jackson County property from injury or loss arising in connection with this contract. The contractor shall make good any such damage, injury or loss.

O. SAFETY: The contractor shall maintain an adequate safety program to insure the safety of contractor employees, subcontractor employees, and all other individuals working under this contract. In addition, the contractor must also provide Jackson County with a written safety program that he intends to follow in pursuing work under this contract. No work under this contract will be permitted until Jackson County is assured that the contractor has an adequate safety program in effect.

P. SUBCONTRACTS: No portion of the work shall be subcontracted without prior written consent of Jackson County. In the event that the contractor desires to subcontract some part of the work specified herein, the contractor shall furnish Jackson County the names, qualifications and experience of their proposed subcontractors. The contractor will, however, remain fully liable and responsible for the work to be done by his subcontractor(s) and shall assure compliance with all requirements of the contract.

Nothing in the agreement shall be constructed as authority for the contractor to make commitments, which shall bind Jackson County, or to otherwise act on behalf of Jackson County, except as Jackson County may expressly authorize in writing.

Q. SUPERINTENDENCE BY CONTRACTOR: The contractor shall be responsible for all work means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the contract except where otherwise specified herein. The contractor shall, at all times, enforce strict discipline and good order among the workers, and shall not employ any unfit person or anyone not skilled in their work.



- R. WORK SITE DAMAGES: Any damage, including damage to finished surfaces, resulting from the performance of this contract shall be repaired to Jackson County's satisfaction at the contractor's expense.
  - S. OTHER SPECIAL INSTRUCTIONS/TERMS: See Section II G – Other requirements concerning bid and bid award.
- VI. METHOD OF PAYMENT:** Jackson County will authorize payment to the contractor after providing satisfactory service and receipt of the contractor's invoice for services rendered. Payment will be made on a monthly basis at the prices as bid, Net 30.

BID DOCUMENT

Base bid = \$ \_\_\_\_\_

Completion time –

Alternates: if any (amount to be deducted or added to bid amount. Indicate add or deduct with a plus or minus).

Alternate #1 –

\$ \_\_\_\_\_

Alternate #2 -

\$ \_\_\_\_\_

Signed: \_\_\_\_\_

Title: \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone number: \_\_\_\_\_

Email: \_\_\_\_\_

Contractor must acknowledge receipt of any addenda on either this form or by signing and returning a copy of the addenda with their bid package.

*Illegal Immigration Reform and Enforcement Act of 2011*  
CONTRACTOR AFFIDAVIT UNDER O.C.G.A. §13-10-91(b)(1)

The Jackson County Board of Commissioners and Contractor agree that compliance with the Illegal Immigration Reform and Enforcement Act of 2011 are conditions of this Agreement for the physical performance of services.

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. §13-10-91, stating affirmatively that the individual, firm, or corporation which is engaged in the physical performance of services on behalf of the Jackson County Board of Commissioners has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. §13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present and affidavit to the contractor with the information required by O.C.G.A. §13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

\_\_\_\_\_  
E-Verify Employment Eligibility Verification User Identification Number

\_\_\_\_\_  
Date of Authorization to Use Federal Work Authorization Program

\_\_\_\_\_  
NAME OF CONTRACTOR

\_\_\_\_\_  
Name of Project

Jackson County Board of Commissioners  
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, \_\_\_\_\_, 20\_\_ in \_\_\_\_\_ (City), \_\_\_\_\_ (State).

\_\_\_\_\_  
Signature of Authorized Officer or Agent

\_\_\_\_\_  
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

**This form must be returned with the bid package submitted.**

**The following pages include a sample contract that will become finalized based on selection by Jackson County Board of Commissioners. Please execute as part of your bid package submission**

**CONTRACT**

This Agreement made and entered into this \_\_\_\_ Day of \_\_\_\_\_, Two Thousand and Twenty Three,

BETWEEN

The Owner: The Jackson County Board of Commissioners  
Jackson County, Georgia  
67 Athens Street  
Jefferson, GA 30549

And the Contractor: \_\_\_\_\_  
(Co. Name & Address) \_\_\_\_\_  
\_\_\_\_\_

**PROJECT: Renovations and Additions to the Jackson County Senior Center, Jackson County, GA**

=====

**WITNESSETH:** That said Contractor has agreed, and by these presents does agree, with the said County, for the consideration herein mentioned and under the provisions of the Invitation To Bid (ITB) as required by the Specifications to furnish all equipment, tools, material, skill and labor of every description necessary to carry out and complete in a good, firm and substantial and workmanlike manner, proposal made by the Contractor, the Advertisement, the Instructions to Bid, Special Terms and Conditions and this Agreement, including all work outlined in the Scope of Service and listed in the conditions, provisions and specification to wit:

**ARTICLE 1**

**The Contract Documents**

The Contract Documents consist of this Agreement, the Invitation To Bid (ITB) 230400, the Contractor's Response to ITB 230400, Drawings, Specifications, and Addenda issued prior to execution of this Agreement and all Change Orders issued subsequent thereto. These form the Contract, and all are as fully a part of the Contract as if attached to this Agreement or repeated herein.

**ARTICLE 2**

**The Work**

The Contractor shall perform all work required by the Contract Documents for:

**PROJECT: Renovations and Additions to the Jackson County Senior Center, Jackson County, GA**

All Work performed under this contract is subject to inspection by the Jackson County Roads Superintendent, the project engineer, Jackson County Facilities Maintenance, and/or and Senior Center Director of Jackson County, Georgia. It shall be the Contractor's responsibility to coordinate with the above for inspection services. All Work shall be performed in accordance with current state and local laws and regulations for the State of Georgia.

### **ARTICLE 3**

#### **Time of Commencement and Completion**

The Work to be performed under this Contract shall begin within thirty (30) days after the Contractor has received the Notice to Proceed (NTP) and will be completed within xxx days of starting the project.

### **ARTICLE 4**

#### **Contract Price**

The Owner shall pay the Contractor, for the performance of the Work completed and approved by the engineer as provided in the Conditions of the Contract, in current funds, as calculated by the unit prices provided in the Contractor's response to the ITB. This price shall remain fixed during the entire length of the original contact period or until the satisfactory completion of all of the projects listed in the ITB. The Scope of Service as outlined ITB shall only be modified by a Change Order approved by all Parties. Each Change Order that is approved by Owner and Contractor will detail any unit price changes that are calculated according to the conditions outlined in the ITB.

### **ARTICLE 5**

#### **Payment**

Payment for the Work as described in Article 4 above, shall be made monthly only for the portion of Work that is completed and inspected by the Road Department Superintendent, Engineer, and/or Facilities Maintenance Department during the month. Payment will be made within thirty (30) days after the completion of the Work, provided that the Contractor fully performed in accordance with the Contract Documents. The Contractor shall complete and submit an invoice for the monthly payment to the Jackson County Government, Attention: Accounts Payable, 67 Athens Street, Jefferson, Georgia 30549. Jackson County reserves the right to request proof of performance of all work completed under this contract.

### **ARTICLE 6**

#### **Georgia Illegal Immigration Reform and Enforcement Act of 2011**

Contractor agrees and acknowledges that compliance with the requirements of the Georgia Illegal Immigration Reform and Enforcement Act of 2011 are conditions of this Contract. The Contractor Affidavit and Agreement executed by Contractor pursuant to O.C.G.A. §13-10-91(b)(1) is hereby incorporated into this Agreement by reference and made a part of this Contract. By the execution of this Contract, the Contractor affirms that the Illegal Immigration Reform and Enforcement Act of 2011 Contractor Affidavit submitted with the response to ITB 190025 is still valid, that the Contractor's Federal Work Authorization Number has not changed, that the Contractor will utilize the Federal Work Authorization Program during the duration of this contact, that the Contractor will ensure that all subcontractors and sub-subcontractors working on the Project covered by this Contract are participating in the Federal Work Authorization Program and have completed the Subcontractors and/or Sub-subcontractor Affidavit, and that the Contractor will advise the Owner of hiring a new subcontractor and/or sub-subcontractor and will provide the Owner with a Subcontractor/Sub-subcontractor Affidavit attesting to the subcontractor's/sub-subcontractor's name, address, user identification number, and date of authorization to use the Federal Work Authorization Program within five (5) days of hiring before the subcontractor/sub-subcontractor begins working on the Project. The Contractor understands and will ensure that all subcontractors and sub-subcontractors understand that knowingly and willfully making a false, fictitious, or fraudulent statement in an affidavit submitted in compliance with O.C.G.A. §13-10-91 shall be guilty of a violation of Code Section §16-10-20 and, upon conviction, shall be punished as provided for in such Code Section. Additionally, any contractor and/or sub-contractor convicted for false statements based upon a violation of this Code Section shall be prohibited from bidding on or entering into any public contract for twelve (12) months following the conviction

**IN WITNESS WHEREOF**, the Parties have executed this Contract on the date first written above.

OWNER:  
Jackson County Board of Commissioners

CONTRACTOR:  
\_\_\_\_\_  
Company's Legal Name

\_\_\_\_\_  
Tom Crow, Chairman

\_\_\_\_\_  
Representative

ATTEST:

ATTEST:

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Notary Public

# **SAMPLE SECTION 3 CONSTRUCTION**

## **BID DOCUMENT LANGUAGE**

As of 2019

### **1. Bid Advertisement Language**

*This is a Section 3 Covered Project under the HUD Act of 1968 and Section 3 Residents and Business Concerns are encouraged to apply.*

*The County is committed to providing all persons with equal access to its services, programs, activities, education, and employment regardless of race, color, national origin, religion, sex, familial status, disability or age.*

### **2. Bidder's Instruction Language**

*"All contractors wishing to be identified as a Section 3 Business Concern must include a completed (as well as signed and notarized) Section 3 Business Concern, Previous Certificate of Compliance and Action Plan with their bid proposal.*

*"In reviewing the bid proposals, any contractors that are identified as qualified Section 3 Business Concerns should be reviewed and if legitimate, granted a Preference in contracting, all other things being equal."*



# AIA<sup>®</sup> Document A305™ – 2020

## Contractor's Qualification Statement

**THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.**

**SUBMITTED BY:** \_\_\_\_\_  
*(Organization name and address.)*

**SUBMITTED TO:** \_\_\_\_\_  
*(Organization name and address.)*  
Jackson County, Georgia

### TYPE OF WORK TYPICALLY PERFORMED

*(Indicate the type of work your organization typically performs, such as general contracting, construction manager as constructor services, HVAC contracting, electrical contracting, plumbing contracting, or other.)*

### THIS CONTRACTOR'S QUALIFICATION STATEMENT INCLUDES THE FOLLOWING:

*(Check all that apply.)*

- Exhibit A – General Information
- Exhibit B – Financial and Performance Information
- Exhibit C – Project-Specific Information
- Exhibit D – Past Project Experience
- Exhibit E – Past Project Experience (Continued)

### CONTRACTOR CERTIFICATION

The undersigned certifies under oath that the information provided in this Contractor's Qualification Statement is true and sufficiently complete so as not to be misleading.

\_\_\_\_\_  
Organization's Authorized Representative  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name and Title

### NOTARY

State of:

County of:

Signed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_

\_\_\_\_\_  
Notary Signature

My commission expires:

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

# **Additions and Deletions Report for** **AIA® Document A305™ – 2020**

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 10:32:20 ET on 03/18/2021.

**PAGE 1**

Jackson County, Georgia

...

- Exhibit A – General Information
- Exhibit B – Financial and Performance Information
- Exhibit C – Project-Specific Information
- Exhibit D – Past Project Experience
- Exhibit E – Past Project Experience (Continued)



# AIA<sup>®</sup> Document A305<sup>™</sup> – 2020 Exhibit A

## General Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by \_\_\_\_\_ and dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_.  
(In words, indicate day, month and year.)

### § A.1 ORGANIZATION

#### § A.1.1 Name and Location

§ A.1.1.1 Identify the full legal name of your organization.

§ A.1.1.2 List all other names under which your organization currently does business and, for each name, identify jurisdictions in which it is registered to do business under that trade name.

§ A.1.1.3 List all prior names under which your organization has operated and, for each name, indicate the date range and jurisdiction in which it was used.

§ A.1.1.4 Identify the address of your organization's principal place of business and list all office locations out of which your organization conducts business. If your organization has multiple offices, you may attach an exhibit or refer to a website.

#### § A.1.2 Legal Status

§ A.1.2.1 Identify the legal status under which your organization does business, such as sole proprietorship, partnership, corporation, limited liability corporation, joint venture, or other.

- .1 If your organization is a corporation, identify the state in which it is incorporated, the date of incorporation, and its four highest-ranking corporate officers and their titles, as applicable.
- .2 If your organization is a partnership, identify its partners and its date of organization.
- .3 If your organization is individually owned, identify its owner and date of organization.

#### ADDITIONS AND DELETIONS:

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- .4** If the form of your organization is other than those listed above, describe it and identify its individual leaders:

**§ A.1.2.2** Does your organization own, in whole or in part, any other construction-related businesses? If so, identify and describe those businesses and specify percentage of ownership.

**§ A.1.3 Other Information**

**§ A.1.3.1** How many years has your organization been in business?

**§ A.1.3.2** How many full-time employees work for your organization?

**§ A.1.3.3** List your North American Industry Classification System (NAICS) codes and titles. Specify which is your primary NAICS code.

**§ A.1.3.4** Indicate whether your organization is certified as a governmentally recognized special business class, such as a minority business enterprise, woman business enterprise, service disabled veteran owned small business, woman owned small business, small business in a HUBZone, or a small disadvantaged business in the 8(a) Business Development Program. For each, identify the certifying authority and indicate jurisdictions to which such certification applies.

**§ A.2 EXPERIENCE**

**§ A.2.1** Complete Exhibit D to describe up to four projects, either completed or in progress, that are representative of your organization's experience and capabilities.

**§ A.2.2** State your organization's total dollar value of work currently under contract.

**§ A.2.3** Of the amount stated in Section A.2.2, state the dollar value of work that remains to be completed:

**§ A.2.4** State your organization's average annual dollar value of construction work performed during the last five years.

**§ A.3 CAPABILITIES**

**§ A.3.1** List the categories of work that your organization typically self-performs.

**§ A.3.2** Identify qualities, accreditations, services, skills, or personnel that you believe differentiate your organization from others.

**§ A.3.3** Does your organization provide design collaboration or pre-construction services? If so, describe those services.

**§ A.3.4** Does your organization use building information modeling (BIM)? If so, describe how your organization uses BIM and identify BIM software that your organization regularly uses.

**§ A.3.5** Does your organization use a project management information system? If so, identify that system.

**§ A.4 REFERENCES**

**§ A.4.1** Identify three client references:

*(Insert name, organization, and contact information)*

**§ A.4.2** Identify three architect references:

*(Insert name, organization, and contact information)*

**§ A.4.3** Identify one bank reference:

*(Insert name, organization, and contact information)*

**§ A.4.4** Identify three subcontractor or other trade references:

*(Insert name, organization, and contact information)*



# AIA<sup>®</sup> Document A305™ – 2020 Exhibit B

## Financial and Performance Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by \_\_\_\_\_ and dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_.  
*(In words, indicate day, month and year.)*

### § B.1 FINANCIAL

§ B.1.1 Federal tax identification number:

§ B.1.2 Attach financial statements for the last three years prepared in accordance with Generally Accepted Accounting Principles, including your organization’s latest balance sheet and income statement. Also, indicate the name and contact information of the firm that prepared each financial statement.

§ B.1.3 Has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, been the subject of any bankruptcy proceeding within the last ten years?

§ B.1.4 Identify your organization’s preferred credit rating agency and identification information.

*(Identify rating agency, such as Dun and Bradstreet or Equifax, and insert your organization’s identification number or other method of searching your organization’s credit rating with such agency.)*

### § B.2 DISPUTES AND DISCIPLINARY ACTIONS

§ B.2.1 Are there any pending or outstanding judgments, arbitration proceedings, bond claims, or lawsuits against your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A, Section 1.2, in which the amount in dispute is more than \$75,000?

*(If the answer is yes, provide an explanation.)*

§ B.2.2 In the last five years has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management:

*(If the answer to any of the questions below is yes, provide an explanation.)*

.1 \_\_\_\_\_ failed to complete work awarded to it?

.2 \_\_\_\_\_ been terminated for any reason except for an owners’ convenience?

### ADDITIONS AND DELETIONS:

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.3 had any judgments, settlements, or awards pertaining to a construction project in which your organization was responsible for more than \$75,000?

.4 filed any lawsuits or requested arbitration regarding a construction project?

**§ B.2.3** In the last five years, has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management; or any of the individuals listed in Exhibit A Section 1.2:  
*(If the answer to any of the questions below is yes, provide an explanation.)*

.1 been convicted of, or indicted for, a business-related crime?

.2 had any business or professional license subjected to disciplinary action?

.3 been penalized or fined by a state or federal environmental agency?



# AIA<sup>®</sup> Document A305<sup>™</sup> – 2020 Exhibit C

## Project Specific Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by \_\_\_\_\_ and dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_.  
*(In words, indicate day, month and year.)*

### PROJECT:

*(Name and location or address.)*

Jackson County Animal Shelter  
29 Galilee Church Road Jefferson, GA

### CONTRACTOR’S PROJECT OFFICE:

*(Identify the office out of which the contractor proposes to perform the work for the Project.)*

### TYPE OF WORK SOUGHT

*(Indicate the type of work you are seeking for this Project, such as general contracting, construction manager as constructor, design-build, HVAC subcontracting, electrical subcontracting, plumbing subcontracting, etc.)*

### CONFLICT OF INTEREST

Describe any conflict of interest your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A Section 1.2, may have regarding this Project.

### § C.1 PERFORMANCE OF THE WORK

§ C.1.1 When was the Contractor’s Project Office established?

§ C.1.2 How many full-time field and office staff are respectively employed at the Contractor’s Project Office?

§ C.1.3 List the business license and contractor license or registration numbers for the Contractor’s Project Office that pertain to the Project.

§ C.1.4 Identify key personnel from your organization who will be meaningfully involved with work on this Project and indicate (1) their position on the Project team, (2) their office location, (3) their expertise and experience, and (4) projects similar to the Project on which they have worked.

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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§ C.1.5 Identify portions of work that you intend to self-perform on this Project.

§ C.1.6 To the extent known, list the subcontractors you intend to use for major portions of work on the Project.

## § C.2 EXPERIENCE RELATED TO THE PROJECT

§ C.2.1 Complete Exhibit D to describe up to four projects performed by the Contractor's Project Office, either completed or in progress, that are relevant to this Project, such as projects in a similar geographic area or of similar project type. If you have already completed Exhibit D, but want to provide further examples of projects that are relevant to this Project, you may complete Exhibit E.

§ C.2.2 State the total dollar value of work currently under contract at the Contractor's Project Office:

§ C.2.3 Of the amount stated in Section C.2.2, state the dollar value of work that remains to be completed:

§ C.2.4 State the average annual dollar value of construction work performed by the Contractor's Project Office during the last five years.

§ C.2.5 List the total number of projects the Contractor's Project Office has completed in the last five years and state the dollar value of the largest contract the Contractor's Project Office has completed during that time.

## § C.3 SAFETY PROGRAM AND RECORD

§ C.3.1 Does the Contractor's Project Office have a written safety program?

§ C.3.2 List all safety-related citations and penalties the Contractor's Project Office has received in the last three years.

§ C.3.3 Attach the Contractor's Project Office's OSHA 300a Summary of Work-Related Injuries and Illnesses form for the last three years.

§ C.3.4 Attach a copy of your insurance agent's verification letter for your organization's current workers' compensation experience modification rate and rates for the last three years.

## § C.4 INSURANCE

§ C.4.1 Attach current certificates of insurance for your commercial general liability policy, umbrella insurance policy, and professional liability insurance policy, if any. Identify deductibles or self-insured retentions for your commercial general liability policy.

§ C.4.2 If requested, will your organization be able to provide property insurance for the Project written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis?

§ C.4.3 Does your commercial general liability policy contain any exclusions or restrictions of coverage that are prohibited in AIA Document A101-2017, Exhibit A, Insurance A.3.2.2.2? If so, identify.

§ C.5 SURETY

§ C.5.1 If requested, will your organization be able to provide a performance and payment bond for this Project?

§ C.5.2 Surety company name:

§ C.5.3 Surety agent name and contact information:

§ C.5.4 Total bonding capacity:

§ C.5.5 Available bonding capacity as of the date of this qualification statement:



# AIA<sup>®</sup> Document A305™ – 2020 Exhibit D

## Contractor's Past Project Experience

	1	2	3	4
PROJECT NAME				
PROJECT LOCATION				
PROJECT TYPE				
OWNER				
ARCHITECT				
CONTRACTOR'S PROJECT EXECUTIVE				
KEY PERSONNEL (include titles)				
PROJECT DETAILS	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work
PROJECT DELIVERY METHOD	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:
SUSTAINABILITY CERTIFICATIONS				



# AIA<sup>®</sup>

# Document A305™ – 2020 Exhibit E

## Contractor's Past Project Experience, Continued

	1	2	3	4
PROJECT NAME				
PROJECT LOCATION				
PROJECT TYPE				
OWNER				
ARCHITECT				
CONTRACTOR'S PROJECT EXECUTIVE				
KEY PERSONNEL (include titles)				
PROJECT DETAILS	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work	Contract Amount  Completion Date  % Self-Performed Work
PROJECT DELIVERY METHOD	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:
SUSTAINABILITY CERTIFICATIONS				

**CDBG Contract Conditions**  
*(Reprinted October 2020)*

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***Note: Determine if contract provision is required by reference to the "Contract Review Checklist" on page 29***

### **Section 3 Clause of the Urban Development Act of 1968**

1.) The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project to be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

2.) The parties to this contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR Part 135, and all applicable rules and orders of the Department issued thereunder prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.

3.) The contractor will send to each labor organization or representative of workers with which he has a collective bargain-agreement or other contract or understanding, if any, a notice advising the said labor organization or workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

4.) The contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR Part 135. The contractor will not subcontract with any subcontractor where it has notice or knowledge that the letter has been found in violation of regulations under 24 CFR Part 135 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

5.) Compliance with the provisions of Section 3, the regulations set forth in the 24 CFR Part 135, and all applicable rules and orders of the Department issued thereunder prior to the execution of the contract, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors, and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and subcontractors, its successors, and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.

## **"Provision for Remedies" Clause**

1.) **Termination:** Unearned payments under this contract may be suspended or terminated upon refusal to accept any additional conditions that may be imposed by City/County; or if the grant to the City/County under the Community Development Block Grant Program is suspended or terminated. Moreover, if through any cause, the contractor shall fail to fulfill its obligations under this contract in a timely and proper manner or if the contractor shall violate any of the covenants, agreements, conditions or obligations of the contract documents; the City/County may terminate this contract by giving written notice to the contractor and surety of such termination and specifying the effective date of such termination. In such event, the City/County may take over the work and prosecute the same to completion, by contract or otherwise, and the contractor and his sureties shall be liable to the City/County for any additional cost incurred by the Owner in its completion of the work and they shall also be liable to the Owner for liquidated damages for any delay in the completion of the work as provided below. Furthermore, the Contractor will be paid an amount which bears the same ratio to the total compensation as the work and services actually performed bear to the total work and services required. Provided, however, that if less than sixty percent of the services required by this Contract have been performed upon the effective date of such termination, the Contractor shall be reimbursed (in addition to the above payment) for that portion of the actual out-of-pocket expenses (not otherwise reimbursed under this Contract) incurred by the Contractor during the Contract period which are directly attributable to the uncompleted portion of the services required by this Contract.

2.) **Liquidated Damages for Delays.** If the work is not completed within the time stipulated, therefore, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Owner as fixed and agreed liquidated damages (it being impossible to determine the damages occasioned by the delay) for each working day of delay, until the work is completed, the amount as set forth in (insert location of liquidated damages statement, normally found in the Contract General Conditions) and the Contractor and his sureties shall be liable to the Owner for the amount thereof.

3.) **Excusable Delays.** The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due:

(a) To any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;

(b) To any acts of the Owner;

(c) To causes not reasonable foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other contract with the Owner, fires, floods, epidemics, quarantine, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, and cyclones; and

(d) To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs (a) (b) and (c) or this subparagraph "d".

Provided, however, that the Contractor promptly notified the Owner within ten (10) days of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If upon the basis of the terms of this contract the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

## **"Termination for Convenience Clause"**

### **1.) Termination for Convenience of the Owner:**

The Owner may terminate this contract at any time for any reason by giving at least thirty (30) days notice in writing to the contractor. If the contract is terminated by the Owner as provided herein, the contractor will be paid a fair payment as negotiated with the Owner for the work completed as of the date of termination.



## Equal Employment Opportunity (EEO) Clause

During the performance of this contract, the Contractor agrees as follows:

- 1.) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and the employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- 2.) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- 3.) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- 4.) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.
- 5.) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
- 6.) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by the rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- 7.) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION  
CONTRACT SPECIFICATIONS  
(EXECUTIVE ORDER 11246)**

1.) As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority;

c.. "Employer identification number" means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Return, US. Treasury Department Form 941.

A Minority Group Member is:

(i) Black (all persons having origins in any of the Black racial groups of Africa);

(ii) Hispanic (consisting of all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin);

(iii) Asian and Pacific Islander (consisting of all persons having origins in any of the original people of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippines and Samoa.)

(iv) Cape Verde (consisting of all persons having origins in the Cape Verde Islands);

(v) Portuguese (consisting of persons of Portuguese, Brazilian or other Portuguese culture or origin); and

(vi) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2.) Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3.) If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the US. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trade

which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4.) The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5.) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications. Executive Order 11246, or the regulations promulgated pursuant thereto.

6.) In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

7.) The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community

organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or if referred, not employed by the Contractor, this shall be documented in the file with the reasons therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, lay-off, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source. The Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment of minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8.) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7a through p of those Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which

demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9.) A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10.) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race color, religion, sex or national origin.

11.) The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12.) The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13.) The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14.) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15.) Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO EQUAL  
EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

1.) The Offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2.) The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

<u>Timetable:</u>	<u>Goals for minority participation</u>	<u>Goals for female participation</u>
Until Further Notice	19.5%	6.9%

These goals are applicable to each non-exempt contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, Federally assisted or non-Federally related project, contract or sub-contract.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3.) The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4.) As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is *Jackson County*.



### **Certification of Nonsegregated Facilities**

By the submission of this bid, the bidder, offerer, applicant or subcontractor certifies that s/he does not maintain or provide for his/her employees any segregated facility at any of his/her establishments, and that s/he does not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained. S/He certifies further that s/he will not maintain or provide for employees any segregated facilities at any of his/her establishments, and s/he will not permit employees to perform their services at any location under his/her control where segregated facilities are maintained. The bidder, offerer, applicant or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause of this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. S/He further agrees that (except where s/he has obtained identical certifications from proposed subcontractors for specific time periods) s/he will obtain identical certification from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause; that s/he will retain such certifications in his/her files; and that s/he will forward the following notice to such proposed subcontractors (except where proposed subcontractors have submitted identical certifications for specific time periods).

**FEDERAL LABOR STANDARDS PROVISION**  
**Georgia Community Development Block Grant**

**Applicability**

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A.1.(i) **Minimum Wages.** All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii)) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(a) The contracting officer shall require that any class of laborers or mechanics, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, US. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

**2. Withholding.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure

to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 for under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) **Payrolls and basic records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project.) Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable program (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii)(a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), US. Government Printing Office, Washington, DC, 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3(i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

**4.(i) Apprentices and Trainees.** Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the US. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as

stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ration permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeymen's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification.

If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the US. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journey hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performs. In addition, any trainee performing work on the job site in excess of the ration permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) **Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may be appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounded for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of a labor standards provision of this contract shall to be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the US. Department of Labor, or the employees or their representatives.

**10. (i) Certification of Eligibility.** By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the US. Criminal Code, 18 U.S.C. 1001. Additionally, US. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of ...influencing in any way the action of such Administration...makes, utters or publishes

any statement, knowing the same to be false...shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

**11. Complaints, Proceedings, or Testimony by Employees.** No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

**B. Contract Work Hours and Safety Standards Act.** As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) **Overtime requirements:** No contractor or subcontractor contracting for any part of the contract work may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) **Violation:** liability for unpaid wages, liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) **Withholding for unpaid wages and liquidated damages:** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any money payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) **Subcontracts:** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier



subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

### **C. Health and Safety**

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

**ACCEPTABLE ALTERNATE WORK SHEET FOR CONTRACTOR CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION (LOWER-TIER PARTICIPANT) FOR HUD PROGRAMS**

Certification regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower-Tier Covered Transactions pursuant to 24 Code of Federal Regulations, Part 24.510(b).

By signing and submitting this proposal, the prospective lower-tier participant certifies that neither it, its principals nor affiliates, is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. Further, the Participant provides the certification set out below.

The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that an erroneous certification was rendered, in addition to other remedies available to the Federal Government, the Department or agency with which this transaction originated may pursue available remedies.

Further, the Participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the Participant learns that this certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

By submitting this proposal, it is agreed that should the proposed covered transaction be entered into, the Participant will not knowingly enter into any lower-tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the agency with which this transaction originated.

It is further agreed that by submitting this proposal, the Participant will include this Certification, without modification, in all lower-tier covered transactions and in all solicitations for lower-tier covered transactions.

Contractor  
Name \_\_\_\_\_ Date \_\_\_\_\_  
Title \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**NON-CERTIFICATION:**

As the perspective lower-tier participant, I am unable to certify to statements in this Certification as explained in the attachment to this proposal.

Contractor  
Name \_\_\_\_\_ Date \_\_\_\_\_  
Title \_\_\_\_\_ Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

*The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.*

## **PERFORMANCE, PAYMENT and BID BONDS**

Contract Performance and Payment Bonds issued in the full amount of the contract are required by federal procurement rules if the contract is for \$100,000 or more.

A Bid Bond or other security is required by federal rules whenever the contract is for \$100,000 or more.

Generally these bonds must be issued by a surety company satisfactory to the local government, qualified to do business in Georgia, and in a format meeting the federal and state legal requirements. The bonding company must also appear on the "List of Acceptable Sureties" published annually by the US Department of the Treasury.

DCA recommends that CDBG Recipients be sure to assign responsibility for reviewing construction bonds. This job may be given to the local attorney, the grant administrator, or the project architect/engineer. Specific duties include verification that the agent is licensed by the state and authorized by the bonding company and verification through the Insurance Commissioner that the company is financially sound and licensed in Georgia. The actual bond should also be reviewed and verified as being valid.

## **COMPLIANCE WITH CLEAN AIR AND WATER ACTS**

The contract is subject to the requirements of the Clean Air Act, as amended, 42 USC 1857 et. seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended from time to time.

In compliance with said regulations:

- 1.) The Contractor shall require of subcontractors that any facility to be utilized in the performance of any nonexempt contract or subcontract is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.
- 2.) The Contractor will comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 USC 1857c-8) and section 308 of the Federal Water Pollution Control Act as amended, (330 USC 1318) relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in said section 114 and section 308, and all regulations and guidelines issued thereunder.
- 3.) The Contractor will provide prompt notice of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized or to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.
- 4.) The Contract will include or cause to be included the criteria and requirements to paragraph (1) through (4) of this section in every nonexempt subcontract and take such action as the Government will direct as a means of enforcing such provisions.

**Contractor Affidavit under O.C.G.A. § 13-10-91(b)(I)**

The undersigned contractor ("Contractor") executes this Affidavit to comply with O.C.G.A § 13-10-91 related to any contract to which Contractor is a party that is subject to O.C.G.A. § 13-10-91 and hereby verifies its compliance with O.C.G.A. § 13-10-91, attesting as follows:

- a) The Contractor has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program;
- b) The Contractor will continue to use the federal work authorization program throughout the contract period, including any renewal or extension thereof;
- c) The Contractor will notify the public employer in the event the Contractor ceases to utilize the federal work authorization program during the contract period, including renewals or extensions thereof;
- d) The Contractor understands that ceasing to utilize the federal work authorization program constitutes a material breach of Contract;
- e) The Contractor will contract for the performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the Contractor with the information required by O.C.G.A. § 13-10-91(a), (b), and (c);
- f) The Contractor acknowledges and agrees that this Affidavit shall be incorporated into any contract(s) subject to the provisions of O.C.G.A. § 13-10- 91 for the project listed below to which Contractor is a party after the date hereof without further action or consent by Contractor; and
- g) Contractor acknowledges its responsibility to submit copies of any affidavits, drivers' licenses, and identification cards required pursuant to O.C.G.A. § 13-10-91 to the public employer within five business days of receipt.

\_\_\_\_\_  
Federal Work Authorization User Identification Number

\_\_\_\_\_  
Date of Authorization

\_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Name of Project

\_\_\_\_\_  
Name of Public Employer

**I hereby declare under penalty of perjury that the foregoing is true and correct.**

Executed on \_\_\_\_\_, \_\_\_\_\_, 20\_\_\_\_ in \_\_\_\_\_(city), \_\_\_\_\_(state).

\_\_\_\_\_  
Signature of Authorized Officer or Agent

\_\_\_\_\_  
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME  
ON THIS THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: \_\_\_\_\_

**Subcontractor Affidavit under O.C.G.A. § 13-10-91(b)(3)**

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with \_\_\_\_\_ (name of contractor) on behalf of Jackson County has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A.

§ 13-10-91(b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice that a sub-subcontractor has received an affidavit from any other contracted sub-subcontractor, the undersigned subcontractor must forward, within five business days of receipt, a copy of the notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

\_\_\_\_\_  
Federal Work Authorization User Identification Number

\_\_\_\_\_  
Date of Authorization

\_\_\_\_\_  
Name of Subcontractor

\_\_\_\_\_  
Name of Project

\_\_\_\_\_  
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, \_\_\_\_\_, 20\_\_ in \_\_\_\_\_ (city), \_\_\_\_\_ (state).

\_\_\_\_\_  
Signature of Authorized Officer or Agent

\_\_\_\_\_  
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME  
ON THIS THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_ .

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires:

**Sub-subcontractor Affidavit under O.C.G.A. § 13-10-91(b)(4)**

By executing this affidavit, the undersigned sub-subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract for \_\_\_\_\_ (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract) and \_\_\_\_\_ (name of contractor) on behalf of Jackson County has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

Furthermore, the undersigned sub-subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned sub-subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the sub-subcontractor with the information required by O.C.G.A. § 13-10-91(b). The undersigned sub-subcontractor shall submit, at the time of such contract, this affidavit to \_\_\_\_\_ (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract). Additionally, the undersigned sub-subcontractor will forward notice of the receipt of any affidavit from a sub-subcontractor to \_\_\_\_\_ (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract). Sub-subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

\_\_\_\_\_  
Federal Work Authorization User Identification Number Date of

\_\_\_\_\_  
Authorization

\_\_\_\_\_  
Name of Sub-subcontractor

\_\_\_\_\_  
Name of Project

\_\_\_\_\_  
Name of Public Employer

Thereby declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, \_\_, 20\_\_ in \_\_\_\_\_ (city), \_\_\_\_\_ (state).

\_\_\_\_\_  
Signature of Authorized Officer or Agent

\_\_\_\_\_  
Printed Name and Title of Authorized Officer or Agent SUBSCRIBED AND

SWORN BEFORE ME

ON THIS THE \_\_\_\_\_ DAY OF \_\_\_\_\_ 201

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: \_\_\_\_\_

**Debarment and Suspension (Executive Orders 12549 and 12689)**- A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235); "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declare ineligible under statutory or regulatory authority other than Executive Order 12549.

**Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)**-Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the **Solid Waste Disposal Act**, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

**Rights to Inventions Made Under a Contract or Agreement.** If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency



CDBG CONTRACT AND CONTRACTOR PROCUREMENT REVIEW CHECKLIST

<b>CDBG Grantee/Recipient:</b>	<b>Grant Number:</b>	<b>Contract Amount:</b>	<b>Reviewer:</b>	<b>Date of Review:</b>
<input type="checkbox"/> Contractor/Subcontractor Affidavit	<b>(Compliance with OCGA 13-10-91) Applicable to ALL Contracts and subcontracts</b>			
<input checked="" type="checkbox"/> Section 3 Clause, DCA Solicitation Package	<b>Yes:</b> _____	<b>No:</b> _____	<b>Does the Owner/Contract Agreement included S3? Yes: _____ No: _____</b>	
<input type="checkbox"/> Provision for Remedies	<b>ALL CONTRACTS</b>			
<input type="checkbox"/> Provision for Termination	<b>ARCHITECTURAL and ENGINEERING SERVICES</b>	<b>HOUSING REHAB</b>	<b>CONSTRUCTION CONTRACTS</b>	
<input type="checkbox"/> Executive Orders 11246/11375	<input type="checkbox"/> Less than 8 units	<input type="checkbox"/> 8 or More Units	<input type="checkbox"/> Over \$100,000	<input type="checkbox"/> Over \$10,000
<input type="checkbox"/> EEO CLAUSE	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> Over \$40,000	<input type="checkbox"/> Over \$2,000
<input type="checkbox"/> EEO Specifications	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Affirmative Action Clause	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Non-Segregated Facilities	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Federal Labor Standards	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Copeland Anti-Kickback	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Davis Bacon Clause	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Wage Rate from DCA Wage Rate #	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Work Hours and Safety	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Performance & Payment Bonds	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> 5% Bid Bond	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Clean Air/Water Clause	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Provision for Disability Accessibility (if a bidg)	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<input type="checkbox"/> Provision for Ga Energy Code (if a building)	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> If over \$10,000	<input type="checkbox"/> •	<input type="checkbox"/> •
<b>The following are ASC additions to the DCA form:</b>				
<b>ENGINEER/ARCHITECT FIRM:</b>				
Number of Days Bids are Good?				
Number of Construction Days Allowed in Contract, if applicable				
Immigration & Security Certification Forms Contractor & Subcontract				
Addendum Received on Bid Form?				
Number of Days Recipient Has in Contract to Pay Contractor after Pay Request is Submitted				
Sample Pay Request Form provided in Contract Documents?				
Sample Change Order Provided in Contract Documents?				
Section 3 Job Training List in Spec Book				

Superseded General Decision Number: GA20220093

State: Georgia

Construction Type: Building

County: Jackson County in Georgia.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> <li>. Executive Order 14026 generally applies to the contract.</li> <li>. The contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.</li> </ul>
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> <li>. Executive Order 13658 generally applies to the contract.</li> <li>. The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.</li> </ul>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/06/2023
1	02/03/2023

BOIL0026-001 01/01/2021

	Rates	Fringes
BOILERMAKER.....	\$ 30.49	23.13

\* ELEV0032-001 01/01/2023

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 47.74	37.335+a+b

PAID HOLIDAYS:

a. New Year's Day, Memorial Day, Independence Day, Labor Day, Vetern's Day, Thanksgiving Day, the Friday after Thanksgiving, and Christmas Day.

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years' service.

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 ENGI0926-034 07/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR: Crane.....	\$ 32.63	13.83

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 PLUM0072-024 08/01/2018

	Rates	Fringes
PIPEFITTER (Including Installation of HVAC Pipe, HVAC Unit, & HVAC Electrical /Temperature Controls).....	\$ 28.48	15.91

\* SUGA2012-011 08/11/2012

	Rates	Fringes
CARPENTER.....	\$ 18.91	3.37
CEMENT MASON/CONCRETE FINISHER...	\$ 12.89 **	0.00
ELECTRICIAN.....	\$ 23.34	3.70
IRONWORKER, REINFORCING.....	\$ 17.72	0.00
IRONWORKER, STRUCTURAL.....	\$ 16.75	0.00
LABORER: Common or General.....	\$ 10.80 **	0.00
LABORER: Pipelayer.....	\$ 15.50 **	0.00
OPERATOR: Backhoe/Excavator.....	\$ 14.00 **	0.00
OPERATOR: Oiler.....	\$ 12.00 **	0.00
PAINTER: Brush, Roller and Spray.....	\$ 14.77 **	0.27

PLUMBER, Excludes  
 Installation of HVAC Pipe,  
 HVAC Unit, and HVAC

Electrical/Temperature Controls.....	\$ 17.54	1.27
ROOFER.....	\$ 13.62 **	0.00
SHEET METAL WORKER (HVAC Duct Installation Only).....	\$ 24.89	9.09
SHEET METAL WORKER, Excludes HVAC Duct Installation.....	\$ 15.77 **	0.00

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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\*\* Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$16.20) or 13658 (\$12.15). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example:

PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====  
END OF GENERAL DECISIO"

**JACKSON COUNTY  
COMMUNITY DEVELOPMENT BLOCK GRANT  
# 22p-y-078-1-6218  
SENIOR CENTER RENOVATION & EXPANSION  
SECTION 3 FEDERAL REQUIREMENTS  
LIST OF PLACES THAT JOB TRAINING COULD  
BE AVAILABLE OR WHERE INFORMATION  
ABOUT JOB TRAINING CAN BE FOUND**

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**Northeast Georgia (Area 9)**

**Northeast Georgia Regional Commission/Workforce Development  
305 Research Drive  
Athens, GA 30605  
706-369-5703  
800-533-5872  
web site: [www.negrdc.org](http://www.negrdc.org)**

**Athens Career Center  
150 Evelyn C. Neely Drive  
Athens, GA 30601  
706-583-2550**

**Lanier Technical College/Jackson Campus  
631 South Elm Street  
Commerce, GA 30529**

**Lanier Technical College/Winder-Barrow Adult Learning Center  
89 E. Athens Street  
Winder, GA 30680  
770-868-4080**

**Athens Technical College/Walton Campus  
212 Bryant Road  
Monroe, GA 30655  
770-207-3130**

**Athens Technical college  
Elbert County Campus  
1317 Athens Highway  
Elberton, GA 30635  
706-213-2100**

SECTION 01 11 13  
SUMMARY OF THE WORK

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITIONS  
JULY 17, 2023

01 11 13-1

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1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 PROJECT DESCRIPTION

- A. The Project consists of the construction of Renovations and Additions to the Jackson County Senior Center. Refer to the drawings and project manual as prepared by CARTER WATKINS ASSOCIATES ARCHITECTS, INC. Contracting shall be by means of a General Contractor for Construction between one General Contractor and Bartow County.
- B. Specific Items of note include:
1. Entire Existing building to be occupied during most times of construction. It is desired that the additions occur first to allow the building to be in use as long as possible.
- C. Proposers are to include a 10% contingency in the Base Bid amount. To be clear, the Bid Amount, entered on the Bid Form, will be multiplied by 9.1% (.091) to obtain the 10% contingency amount added to each base bid.

1.3 CONTRACTORS USE OF PREMISES

- A. General: Limit use of the premises only to construction activities in areas indicated.
1. Confine operations to areas within Construction limits to areas mutually agreed upon with the Owner. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
  2. This facility is adjacent to the Bartow County Senior Center which will be in use during construction. Therefore, it is CRITICAL that the entry remain clear at all times. The remainder of the site is to be kept clean and available to the Owner. Do not use these unapproved areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

END OF SECTION



SECTION 01 21 13

ALLOWANCES

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

01 21 13-1

JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITIONS

JULY 17, 2023

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PART 1 - GENERAL

ALLOWANCES ARE AS FOLLOWS (IF ANY):

1. Hardware Allowance: ALL EXISTING DOORS TO RECEIVE NEW LOCKSETS – (allowance to provide for the purchase of hardware materials only. Labor, preparation, etc. to be included in base bid amount). Figures below are not inclusive of Access Control and do not apply to specialty doors (Detention, Vault doors, etc.)

\$ 1,800.00 per existing interior door leaf (if any need new hardware)

\$ 2,000.00 per new interior door leaf

\$ 2,500.00 (Hardware for Storefront doors is to be included in cost of storefront).

2. Brick – Allow a material-only cost for brick of \$ 850.00 per thousand. Mortar, and all other accessories, labor, etc. to be included in the base bid.
3. TOTAL CONTINGENCY ALLOWANCE – Provide a contingency amount, of the total construction cost, of 10% which is to be utilized at the Owner and Architect's discretion. Note that this is to be a 10% figure based on the total project cost.
4. Access Control – Provide an allowance of \$35,000.00 to provide and install access control. This figure is to include provision of all conduit and wiring.

END OF SECTION

SECTION 01 23 00

ALTERNATES

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

01 23 00-1

JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITIONS

JULY 17, 2023

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for Alternates.
- B. Definition: an Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in Contract Documents.
- C. Coordination: Coordinate related Work and modify or adjust adjacent work as necessary to ensure that work affected by each accepted Alternate is complete and fully integrated into the project.
- D. Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternates.
- E. Schedule: Specification Sections contain requirements for materials and methods necessary to achieve the work described under each Alternate.

Alternate Additions/Deductions to the Base Bid (IF ANY) Refer to Addendums for future alternates.

- 1.
- 2.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 25 13  
PRODUCT SUBSTITUTIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION  
JULY 17, 2023

01 25 13

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
- B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."
- C. Standards: Refer to Section "Definitions and Standards" for applicability of industry standards to produce specified.
- D. Procedural requirements governing the Contractor's selection of products and product options are included under Section "Materials and Equipment."

1.3 DEFINITIONS

- A. Definitions used in the Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:
1. Revisions to Contract Documents requested by the Owner or Architect.
  2. Specified options of products and construction methods included in Contract Documents.
  3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

- A. Substitution Request Submittal: Requests for substitution will be considered if received within 15 days after commencement of the work. Requests received more than 15 days after commencement Of the Work may be considered or rejected at the discretion of the Architect.
1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.
  2. The Architect will consider only those requests accompanied by a copy of the Request

SECTION 01 25 13  
PRODUCT SUBSTITUTIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

01 25 13

JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION

JULY 17, 2023

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for Substitution form bound herein, filled out completely, signed, and including the required attachments.

3. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, whichever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order.

**PART 2 - PRODUCTS**

**2.1 SUBSTITUTIONS**

A. Conditions: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of Contract Documents.
3. The request is timely, fully documented and properly submitted.
4. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the work promptly or coordinate activities properly.
5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
6. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.
7. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
8. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be

SECTION 01 25 13  
PRODUCT SUBSTITUTIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
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coordinated.

9. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
- B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 25 13  
PRODUCT SUBSTITUTIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER - RENOVATIONS AND ADDITION  
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PROPOSED REQUEST FOR SUBSTITUTION

TO: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FROM: \_\_\_\_\_  
Name of Manufacturer  
\_\_\_\_\_  
Street Address  
\_\_\_\_\_  
City and State  
\_\_\_\_\_  
Phone number and name of person to contact

PROJECT: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1. Specification Section and Paragraph numbers of product specified  
\_\_\_\_\_.

2. Proposed Substitute

- A. Name and Model No:
- B. Description:
- C. Attach applicable Submittals as required by the referenced Specification Section, i.e. Product Data, Materials List, Shop Drawings, Samples, Design Data, Test Reports, and Certificates. Attach Shop Drawings to the effect of the proposed substitution on adjacent components of the work.
- D. Insert Numbers of applicable reference standards:
- E. Attach a color chart; if applicable.

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PRODUCT SUBSTITUTIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION  
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- F. Attach installation instructions.
3. Manufacturer's Reputation: Attach the following:
- A. Evidence of reputation for prompt delivery.
  - B. Evidence of reputation for efficiency in servicing products.
4. Comparison: Attach an itemized comparison of the proposed substitution with product specified. Significant qualities may include elements such as size, weight, durability, performance, and visual effects.
5. Changes in Work: Attach data relating to changes required in other work to permit use of proposed substitution and changes required in construction schedule and overall contract time. Coordinate changes or modifications needed to other parts of the work and to construction performed by the Owner and separate Contractors that will be necessary to accommodate the proposed substitution.
6. Cost Data: Attach accurate cost data on proposed substitution in comparison with product specified.
7. Previous Installation: Provide the following information on similar projects on which proposed substitution was used, list projects in the locale of the project primarily and then in other areas that best represent its application on this project:

Name and Address of Project	Date of Installation	Name, Address and Phone Number of Architect
--------------------------------	-------------------------	--

A.

B.

C.

D.

8. In making a request for substitution, the Manufacturer, Installer, and

SECTION 01 25 13  
PRODUCT SUBSTITUTIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER - RENOVATIONS AND ADDITION  
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01 25 13

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Contractor each represents that:

- A. He has examined the Drawings and Specifications and has determined that, to the best of his knowledge, the proposed substitution is appropriate for the use intended in the Drawings and Specifications.
- B. He will provide the same or better warranty for substitution as for product or method specified.
- C. The product is equal or better in quality and serviceability to the specified item.

9. In making a request for substitution, the Installer and Contractor each represents that:

- A. He will coordinate the installation of accepted substitution into the work, making such changes as may be required for the work to be complete in all respects.
- B. He waives all claims for additional costs related to substitution which consequently become apparent.
- C. Cost data is complete and includes all related costs under his Contract, but excludes costs under separate contracts and the Architect's redesign costs.
- D. The substitution meets the requirements of the Contract Documents, regardless of the evidence submitted or any review or independent investigation by the Owner or the Architect.

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Name of Manufacturer and signature of Manufacturer's Rep    Date

---

Name of Installer and signature of Installer's Rep    Date

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Name of Contractor and signature of Contractor's Rep    Date



SECTION 01 26 00  
MODIFICATION PROCEDURES

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION  
JULY 17, 2023

01 26 00-1

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to this section.

1.2 SUMMARY

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

1.3 MINOR CHANGES IN THE WORK

- A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect on AIA form G710, Architect's Supplemental Instructions.

1.4 CHANGE ORDER PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.

1. Proposal requests issued by the Architect are for information only. Do not consider them instruction either to stop work in progress, or to execute the proposed change.

2. Unless otherwise indicated in the proposal request, within 20 days of receipt of the proposal request, submit to the Architect for the Owner's review an estimate of cost necessary to execute the proposed change.

a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.. Contractor-Initiated Change Order Proposals: When

latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a change proposal to the Architect.

1. Include a statement outlining the 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

SECTION 01 26 00  
MODIFICATION PROCEDURES

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION  
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proposed change on the Contract Sum and Contract Time.

2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Comply with requirements in Section "Product Substitutions" if the proposed change in the Work requires the substitution of one product or system for a product or system specified.

**1.5 ALLOWANCES**

- A. Allowance Adjustment: Base each Change Order Proposal for an allowance cost adjustment solely on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place, with reasonable allowances, where applicable, for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

**1.6 CONSTRUCTION CHANGE DIRECTIVE**

- A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Architect may issue a Construction Change Directive on AIA for G714, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

**1.7 CHANGE ORDER PROCEDURES**

- A. Upon the Owner's approval of a Change Order Proposal, the Architect will issue a Change Order for signatures of the Owner and Contractor on AIA Form G701, as provided in the Conditions of the Contract.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**END OF SECTION**

SECTION 01 29 00  
APPLICATION FOR PAYMENT

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION  
JULY 17, 2023

01 29 00-1

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1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

1.3 SCHEDULE OF VALUES

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

1. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.

- B. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.

1. Identification: Include the following Project Identification on the Schedule of Values:

- a. Project name
- b. Name of the Architect
- c. Project number
- d. Contractor's name and address
- e. Date of submittal

2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:

- a. Generic name
- b. Related Specification Section
- c. Name of subcontractor
- d. Name of Manufacturer or fabricator

SECTION 01 29 00  
APPLICATION FOR PAYMENT

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION  
JULY 17, 2023

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- e. Name of supplier
  - f. Change Orders (numbers) that have affected value
  - g. Dollar value
  - h. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent
3. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

1.4 APPLICATIONS FOR PAYMENT:

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
- B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for payment.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
- E. Transmittal: Submit 3 executed copies of each Application for Payment to the Architect by means ensuring receipt within 24 hours.
- F. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
- G. Administrative actions and submittals that shall proceed or coincide with this application include:
  - 1. Occupancy permits and similar approvals
  - 2. Warranties (guarantees) and maintenance agreements
  - 3. Test/adjust/balance records
  - 4. Maintenance instructions
  - 5. Meter readings
  - 6. Start-up performance reports
  - 7. Change-over information related to Owner's occupancy, use, operation, and maintenance.
  - 8. Final cleaning

SECTION 01 29 00  
APPLICATION FOR PAYMENT

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

01 29 00-3

JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION

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9. Application for reduction of retainage, and consent of surety
  10. Advice on shifting insurance coverages
  11. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial completion.
- H. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
1. Completion of Project closeout requirements
  2. Completion of items specified for completion after Substantial Completion
  3. Assurance that unsettled claims will be settled
  4. Assurance that Work not complete and accepted will be completed without undue delay
  5. Transmittal of required Project construction records to Owner
  6. Certified property survey.
  7. Proof that taxes, fees, and similar obligations have been paid
  8. Release of liens
  9. Removal of temporary facilities and services
  10. Removal of surplus materials, rubbish, and similar elements
  11. Change of door locks to Owner's access

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 31 13  
PROJECT COORDINATION

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION  
JULY 17, 2023

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
1. Coordination
  2. General installation provisions
  3. Cleaning and protection

1.3 COORDINATION

- A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
1. Where installation of one part of the work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
  2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
  3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations,

SECTION 01 31 13  
PROJECT COORDINATION

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION  
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to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing work. Secure work true to line and level. Allow for expansion and building movement.
- E. Visual Effects: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.
- G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

**3.2 CLEANING AND PROTECTION**

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

END OF SECTION

SECTION 01 31 19  
PROJECT MEETINGS

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including general and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
  - 1. Pre-Construction Conference
  - 2. Progress Meetings – to be held every other week at an agreed-upon time/date.
- B. Construction schedules are specified in another Division-1 Section.

1.3 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the work.
- C. Agenda: Discuss items of significance that could affect progress including such topics as:
  - 1. Tentative construction schedule
  - 2. Critical Work sequencing
  - 3. Designation of responsible personnel
  - 4. Procedures for processing field decisions and Change Orders
  - 5. Procedures for processing Applications for Payment
  - 6. Distribution of Contract Documents
  - 7. Submittal of Shop Drawings, Product Data and Samples
  - 8. Preparation of record documents
  - 9. Use of the premises
  - 10. Office, Work, and storage areas
  - 11. Equipment deliveries and priorities
  - 12. Safety procedures
  - 13. First aid
  - 14. Security
  - 15. Housekeeping



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PROJECT MEETINGS

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16. Working hours

1.4 PROGRESS MEETINGS

- A. Conduct Contractor/sub-contractor progress meetings at the Project site at weekly intervals. Notify the Owner and Architect of scheduled meeting dates and provide meeting minutes of each meeting. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: The General Contractor's Project Manager and Superintendent and each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
  - 1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind 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.
  - 2. Review the present and future needs of each entity present, including such items as:
    - a. Interface requirements
    - b. Time
    - c. Sequences
    - d. Deliveries
    - e. Off-site fabrication problems
    - f. Access
    - g. Site utilization
    - h. Temporary facilities and services
    - i. Hours of Work
    - j. Hazards and risks
    - k. Housekeeping
    - l. Quality and Work standards
    - m. Change Orders
    - n. Documentation of information for payment requests
    - o. Pre-installation discussions

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PROJECT MEETINGS

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- D. Reporting: No later than 3 days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
1. Schedule Updating: Revise the construction schedule after each progress meeting where revision to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

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SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.
3. Final completion construction photographs.

B. Related Requirements:

1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
2. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.
3. Section 311000 "Site Clearing" for photographic documentation before site clearing operations commence.

1.2 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within [three] days of taking photographs.

1. Submit photos [on CD-ROM or thumb-drive]. Include copy of key plan indicating each photograph's location and direction.
2. Identification: Provide the following information with each image description [in file metadata tag]:

a. Name of Project.

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- b. Name and contact information for photographer.
- c. Name of Architect[ and Construction Manager].
- d. Name of Contractor.
- e. Date photograph was taken.
- f. Description of location, vantage point, and direction.
- g. Unique sequential identifier keyed to accompanying key plan.

### 1.3 QUALITY ASSURANCE

### 1.4 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of [12] megapixels, and at an image resolution of not less than [3200 by 2400] pixels[, and with vibration-reduction technology]. Use flash in low light levels or backlit conditions.
- B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

### 1.5 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs with maximum depth of field and in focus.
  - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Preconstruction Photographs: Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by [Architect].
  - 1. Flag [construction limits] before taking construction photographs.
  - 2. Take [20] photographs to show existing conditions adjacent to property before starting the Work.
  - 3. Take [20] photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.

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4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take [20] photographs [weekly] . Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take [100] photographs after date of Substantial Completion for submission as Project Record Documents. [Architect] will inform photographer of desired vantage points.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

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SUBMITTALS

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the work, including:
1. Contractor's construction schedule
    2. Daily construction reports
    3. Shop Drawings
    4. Product Data
    5. Samples
- B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
1. Permits
  2. Applications for payment
  3. Performance and payment bonds
  4. Insurance certificates
  5. List of Subcontractors
- C. The Schedule of Values submittal is included in Section "Applications for Payment."

1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
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 elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Architect reserves the right to withhold action on a submittal requiring coordination

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with other submittals until related submittals are received.

3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
  - a. Allow three weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
  - b. If an intermediate submittal is necessary, process the same as the initial submittal.
  - c. Allow two weeks for reprocessing each submittal.
  - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
  1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
  2. Include the following information on the 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. Number and title of appropriate Specification Section
    - i. Drawing number and detail references, as appropriate
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
  1. On the transmittal Record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

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- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor's construction schedule. Submit within 30 days of the date established for "Commencement of the Work".
  - 1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
- B. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
  - 1. When revisions are made, distribute 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 construction activities.
- C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
  - 1. Dimensions
  - 2. Identification of products and materials included
  - 3. Compliance with specified standards
  - 4. Notation of coordination requirements
  - 5. Notation of dimensions established by field measurement.
  - 6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings of sheets at least 8 1/2" x 11" but no larger than 30" x 42".
  - 7. Initial Submittal: Submit one correctable translucent reproducible print and two blue or black-line print for the Architect's review; the reproducible print will be returned.
  - 8. Final Submittal: Submit three blue or black-line prints; submit 5 prints where required for maintenance manuals. 2 prints will be retained; the remainder will be returned.
  - 9. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.



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C. SPECIFIC SHOP DRAWINGS TO BE SUBMITTED, IN ADDITION TO CUSTOMARY ITEMS, ARE AS FOLLOWS:

1. Engineered Wood Truss Shop drawings with Georgia Registered Engineer's Stamp.
2. Steel Stud/wood stud Shop drawings with Georgia Registered Engineer's Stamp.
3. Parking and sidewalk layout shop drawing.
4. Roofing, flashing, and coping shop drawings.
5. Millwork and Cabinetry.
6. Interior Finishes.
7. HVAC, Plumbing, and Electrical.

1.6 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
  - a. Manufacturer's printed recommendations
  - b. Compliance with recognized trade association standards
  - c. Compliance with recognized testing agency standards
  - d. Application of testing agency labels and seals
  - e. Notation of dimensions verified by field measurement
  - f. Notation of coordination requirements
2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
3. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.
4. Submittals: Submit 3 copies of each required submittal; submit 5 copies where required for maintenance manuals. The Architect will retain one, and will return the other marked with action taken and corrections or modifications required.
  - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

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5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
  - a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
  - b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.7 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
  1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's Sample. Include the following:
    - a. Generic description of the Sample
    - b. Sample source
    - c. Product name or name of manufacturer
    - d. Compliance with recognized standards
    - e. Availability and delivery time
  2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
    - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3) that show approximate limits of the variations.
    - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
    - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
  3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material

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SUBMITTALS

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or product.

- a. Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.
4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken.
5. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
  - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
  - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1.8 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.
  1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
  1. Final Unrestricted Release: Where submittals are marked "Approved " or No Exceptions Taken" that part of the work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance. This does NOT preclude the Contractor from following the Construction Documents in any way. This does not comprise the Architect's "approval" of the submittal, other than for a cursory review, and does not allow the contractor to deviate from the documents in any fashion. It is simply a courtesy review of the submittal. The Architect has outlined the project in the Construction Document and any variation is taken at the Contractor's risk.
  2. Final-But-Restricted Release: When submittals are marked "Make Corrections Noted" that part of the Work covered by the submittal may proceed provided it complies with notations or

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corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

3. Returned for Resubmittal: When submittal is marked "Rejected, Resubmit," do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
  - a. Do not permit submittals marked "Rejected, Resubmit" to be used at the Project site, or elsewhere where Work is in progress.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 42 19  
REFERENCE STANDARDS AND DEFINITIONS

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the General Conditions.
- B. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, other paragraphs or schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.
- C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Architect," "requested by the Architect," and similar phrases.
- D. Approve: The term "approved," where used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in General and Supplementary Conditions.
- E. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
- G. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
- H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
- I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor, for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
1. The term "experienced" when used with the term "Installer" means having a minimum of 5 previous Projects similar in size and scope to this Project, being familiar with the precautions required, and having complied with requirements of the authority having jurisdiction.
  2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic

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REFERENCE STANDARDS AND DEFINITIONS

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name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

3. Assignment of Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or opinion. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

- J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.

- K. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

### 1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with The standard in effect as of date of Contract Documents.

- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Architect for a decision before proceeding.

1. 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. In complying with these requirements, indicated numeric values are minimum or maximum, as

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REFERENCE STANDARDS AND DEFINITIONS

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appropriate for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.

- D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
  2. Although copies of standards needed for enforcement of requirements may be included as part of required submittals, the Architect reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

**1.4 GOVERNING REGULATIONS/AUTHORITIES**

- A. The Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents; that information may or may not be of significance to the Contractor. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.

**1.5 SUBMITTALS**

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 43 13  
MATERIALS AND EQUIPMENT

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."
- C. Standards: Refer to Section "Definitions and Standards" for applicability of industry standards to products specified.
- D. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section "Product Substitutions."

1.3 DEFINITIONS

- A. Definitions used in the Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.
1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
    - a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
  2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
  3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.4 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the



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Architect for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.

- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to View in occupied spaces or on the exterior.
  - 1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.
  - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
    - a. Name of product and manufacturer
    - b. Model and serial number
    - c. Capacity
    - d. Speed
    - e. Ratings

**1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
  - 1. Schedule delivery to minimize long-term storage at the 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 the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
  - 4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
  - 5. Store products at the site in a manner that will facilitate inspection and measurement of

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quantity or counting of units.

6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

**PART 2 - PRODUCTS**

**2.1 PRODUCT SELECTION**

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
  1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
  2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:
  1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. Substitutions will be permitted, if approved equal.
  2. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. Substitutions will be permitted, if approved equal.
  3. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
  4. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
    - a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.
  5. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with

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- the standards, codes or regulations specified.
6. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.
    - a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.
  7. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.
  8. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division-1 for allowances that control product selection, and for procedures required for processing such selections.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work.
  1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.
- B. Temporary utilities required include but are not limited to:
1. Water service and distribution
  2. Temporary electric power and light
  3. Telephone service.
  4. Internet Service with email, Computer, and Printer.
- C. Temporary construction and support facilities required include but are not limited to:
1. Temporary heat
  2. Field offices with telephone, internet, and conference room.
  3. Sanitary facilities, including drinking water
  4. Temporary enclosures
  5. Elevator use
  6. Temporary Project identification signs and bulletin boards
  7. Waste disposal services
  8. Rodent and pest control
  9. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities required include but are not limited to:
1. Temporary fire protection
  2. Barricades, warning signs, lights
  3. Environmental protection

1.3 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.

1.4 QUALITY ASSURANCE

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- A. Regulations: Comply with industry standards and applicable laws and regulations if authorities having jurisdiction, including but not limited to:
1. Building Code requirements
  2. Health and safety regulations
  3. Utility company regulations
  4. Police, Fire Department and Rescue Squad rules
  5. Environmental protection regulations
- B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."
1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
  2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

**1.5 PROJECT CONDITIONS**

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. Lumber and Plywood: Comply with requirements in Division-6 Section "Rough Carpentry."
1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.

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2. For signs and directory boards, provide exterior type, Grade B-B high Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.
  3. For fences and vision barriers, provide exterior type, minimum 3/8" thick plywood.
- C. Gypsum Wallboard: Provide gypsum wallboard complying with requirements of ASTM C 36 on interior walls of temporary offices.
- D. Paint: Comply with requirements of Division-9 Section "Finish Painting."
1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
  2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
  3. For interior walls of temporary offices, provide two coats interior latex flat wall paint.
- E. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- F. Water: Provide potable water approved by local health authorities.

**2.2 EQUIPMENT**

- A. General: Provide new equipment; if acceptable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.

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- G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- H. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
- I. First Aid Supplies: Comply with governing regulations.
- J. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
  - 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. 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: Connect to existing service.
- B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.
  - 1. Sterilization: Sterilize temporary water piping prior to use.
- C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.

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1. Except where overhead service must be used, install electric power service underground.
  2. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
- D. Temporary Lighting: Whenever overhead floor or roof deck has been installed, provide temporary lighting with local switching.
1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.
- E. Temporary Telephones: Provide temporary telephone service for all personnel engaged in construction activities, throughout the construction period. Install telephone on a separate line for each temporary office and first aid station. Where an office has more than two occupants, install a telephone for each additional occupant or pair of occupants.
1. At each telephone, post a list of important telephone numbers.

**3.3 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES**

- A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.
1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.
- C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.
- D. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.
1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.



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- E. Field offices: Provide insulated, weather-tight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings. Furnish and equip offices as follows:
- F. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
  - 1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
- G. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- H. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
  - 1. Provide safety showers, eye-wash fountains and similar facilities for convenience, safety and sanitation of personnel.
- I. Drinking Water Facilities: Provide containerized tap-dispenser bottled-water type drinking water units, including paper supply.
  - 1. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F (7 to 13 deg C).
- J. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
  - 1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  - 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 sq feet or less with plywood or similar materials.
  - 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.
  - 4. Where temporary wood or plywood enclosure exceeds 100 sq ft in area, use UL-labeled fire-retardant treated material for framing and main sheathing.
- K. Temporary Elevator Use: Use of Service Elevator for movement of materials and personnel is permitted.

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- L. Project Identification and Temporary Signs: Prepare project identification and other signs of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.
1. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
  2. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.
- M. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.
- N. Rodent and Pest Control: Retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be relatively free of pests and their residues at Substantial Completion. Perform control operations in a lawful manner using environmentally safe materials.
- 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION**
- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by the Architect.
- B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
  2. Store combustible materials in containers in fire-safe locations.
  3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

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4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
- D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
- E. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
  1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- F. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

**3.5 OPERATION, TERMINATION AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
  2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that

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may have been delayed because of interference with the 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 the Contractor. The Owner reserves the right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:
  - a. Replace air filters and clean inside of ductwork and housings.
  - b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
  - c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION

SECTION 01 58 13

PROJECT SIGNS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 DESCRIPTION

- A. Furnish, install, and maintain project identification sign.
- B. Provide temporary on-site informational signs:
  - 1. As required by codes, laws, and regulatory agencies.
  - 2. To identify key elements of construction facilities.
  - 3. To direct traffic.
  - 4. Signage required per DCA for grant purposes (Section 3, etc.)
- C. Remove signs at completion of construction.
- D. Allow no other signs to be displayed.

1.2 PROJECT IDENTIFICATION SIGN

- A. Erect on the site at a lighted location of high public visibility, adjacent to the main entrance to site, as approved by Architect. Sign to be two (2) 8' wide by 4' tall plywood sheets mounted on two 6 x 6 pressure treated posts in the shape of a "V". Sign shall have:
  - Job Title
  - Building Rendering
  - Bartow County Sole Commissioner's name list along with County Logo
  - Architects name with logo at bottom left
  - Contractor's name with logo at bottom right.

PART 2 - PRODUCTS

2.1 SIGN MATERIALS

- A. Structure and Framing: May be new, wood or metal, in sound condition structurally adequate to work, and suitable for specified finish.
- B. Sign Surfaces: Exterior 4' x 8' plywood with medium density overlay, standard large sizes to minimize joints.
- C. Rough Hardware: Galvanized
- D. Paint: Exterior quality, as specified in Section 09 900.
  - 1. Use bulletin colors for graphics.
  - 2. Colors for structure, framing, sign surfaces, and graphics as shown.

PART 3 - EXECUTION

3.1 PROJECT IDENTIFICATION SIGN

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PROJECT SIGNS

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- A. Paint all exposed surfaces of supports, framing, and surface materials; one coat of primer, and one coat of exterior paint.
- B. Paint graphics in the styles, sizes and colors as indicated on drawing in this section of specifications.
- C. Provide the Project name at top center; Owner's name middle center; County Logo; Commissioners' name and title; "Funding provided, in part, by a Community Development Block Grant"; in smaller font provide Architect's name and address at lower left; Contractor's name and address at lower right; and any other name deemed appropriate for the project at lower center. **VERIFY EXACT WORDING - PROVIDE SHOP DRAWINGS**

**3.2 MAINTENANCE**

- A. Maintain signs and supports in a neat, clean condition; repair damages to structure, framing, or sign.
- B. Relocate informational signs as required by progress of work.

**3.3 REMOVAL**

- A. Remove signs, framing, supports, and foundations at completion of project.

**END OF SECTION**

SECTION 01 70 00  
PROJECT CLOSEOUT

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
1. Inspection procedures
  2. Project record document submittal
  3. Operating and maintenance manual submittal
  4. Submittal of warranties
  5. Final clearing
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Division-2 through -16.

**1.3 SUBSTANTIAL COMPLETION**

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
    - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.
  2. Advise Owner of pending insurance change-over requirements.
  3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
  4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
  5. Submit record drawings, maintenance manuals, and similar final record information.
  6. Deliver tools, spare parts, extra stock, and similar items.
  7. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.
  8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with

SECTION 01 70 00  
PROJECT CLOSEOUT

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construction tools, mock-ups, and similar elements.

9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspect Procedures: On receipt of a request for inspection the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will repeat inspection when requested and assured that the work has been substantially completed.
2. Results of the completed inspection will form the basis of requirements for final acceptance.
3. The initial inspection shall be scheduled at least 20 days prior to date of substantial completion.
4. If necessary, the initial inspection will be repeated. Architects and Engineers cost for re-inspection will be paid by the Contractor and deducted from the contract sum by change order.

#### 1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the work.
5. Submit consent of surety to final payment.
6. Submit a final liquidated damages settlement statement.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Re-inspection Procedure: The Architect will re-inspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

1. Upon completion of re-inspection, the Architect will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not



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been fulfilled but are required for final acceptance.

2. If necessary, re-inspection will be repeated, and the Architect's and Engineer's costs for re-inspection will be paid by the Contractor and deducted from the contract sum by change order.

**1.5 RECORD DOCUMENT SUBMITTALS**

- A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
  1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.
  2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
  3. Note related Change Order numbers where applicable.
  4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.
  1. Upon completion of the work, submit record Specifications to the Architect for the Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.

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1. Upon completion of mark-up, submit complete set of record Product Data to the Architect for the Owner's records.
- E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Architect and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.
- F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner's records.
- G. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information.
  1. Emergency instructions
  2. Spare parts lists
  3. Copies of warranties
  4. Wiring diagrams
  5. Recommended "turn around" cycles
  6. Inspection procedures
  7. Shop Drawings and Product Data
  8. Fixture lamping schedule

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION**

**3.1 CLOSEOUT PROCEDURES**

- A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:
  1. Maintenance manuals
  2. Record documents
  3. Spare parts and materials
  4. Tools
  5. Lubricants

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6. Fuels
  7. Identification systems
  8. Control sequences
  9. Hazards
  10. Cleaning
  11. Warranties and bonds
  12. Maintenance agreements and similar continuing commitments
- B. As part of instruction for operating equipment, demonstrate the following procedures:
1. Start-up
  2. Shutdown
  3. Emergency operations
  4. Noise and vibration adjustments
  5. Safety procedures
  6. Economy and efficiency adjustments
  7. Effective energy utilization

**3.2 FINAL CLEANING**

- A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
- a. Remove labels that are not permanent labels
  - b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
  - c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
  - d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
  - e. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- C. Pest Control: Engage an experienced exterminator to make a final inspection, and rid the Project of rodents, insects and other pests.

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- D. Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.
- E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
  - 1. Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION

SECTION 01 78 33  
WARRANTIES AND BONDS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
  2. General closeout requirements are included in Section "Project Closeout."
  3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions-2 through -16.
  4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

**1.3 DEFINITIONS**

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

**1.4 WARRANTY REQUIREMENTS**

- A. Related Damages and Losses: When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.
- B. Reinstatement of Warranty: When work covered by a warranty has failed and has been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The Contractor

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is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.

D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The Owner reserves the right to refuse to accept work for the Project where a special warranty, certification, or similar commitment is required on such work or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.

#### 1.5 SUBMITTALS

A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the work, submit written warranties upon request of the Architect.

1. When a designated portion of the work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the work.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

1. Refer to individual Sections of Divisions-2 through -16 for specific content requirements, and particular requirements for submittal of special warranties.

C. Form of Submittal: At Final Completion compile two copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the

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- product or installation, including the name of the product, and the name, address, and telephone number of the installer.
2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the Project title or name, and the name of the Contractor.
  3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 78 39  
PROJECT RECORD DOCUMENTS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 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. Related Sections include the following:
1. Division 1 Section "Summary of Multiple Contracts" for coordinating Project Record Documents covering the Work of multiple contracts.
  2. Division 1 Section "Closeout Procedures" for general closeout procedures].
  3. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  4. Divisions 2 through 16 Sections for specific requirements for Project Record Documents of products in those Sections.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
1. Number of Copies: Submit **one** set of marked-up Record Prints and one electronic copy.
  2. Number of Copies: Submit copies of Record Drawings as follows:
    - a. Initial Submittal: Submit **one** set of **corrected Record electronic files** and **one** set of marked-up Record Prints. Architect will initial and date each **marked-up set** and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return **transparencies** and prints for organizing into sets, printing, binding, and final submittal.
    - b. Final Submittal: Submit **one** set of marked-up Record Prints, **one** set of record transparencies, and **three** copies printed from Record Transparencies. Print



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- each Drawing, whether or not changes and additional information were recorded.
- c. Final Submittal: Submit **one** set of marked-up Record Prints, **one** set of Record CAD Drawing files, **one** set of Record CAD Drawing plots, and **three** copies printed from record plots. Plot and print each Drawing, whether or not changes and additional information were recorded.
    - 1) Electronic Media: **CD-ROM**.
  - B. Record Specifications: Submit **one copy** of Project's Specifications, including addenda and contract modifications.
  - C. Record Product Data: Submit **one copy** of each Product Data submittal.
    - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as Record Product Data.

## 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. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  - 2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.

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- e. Revisions to routing of piping and conduits.
  - f. Revisions to electrical circuitry.
  - g. Actual equipment locations.
  - h. Duct size and routing.
  - i. Locations of concealed internal utilities.
  - j. Changes made by Change Order or Construction Change Directive.
  - k. Changes made following Architect's written orders.
  - l. Details not on the original Contract Drawings.
  - m. Field records for variable and concealed conditions.
  - n. Record information on the Work that is shown only schematically.
3. 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.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.
1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
  2. Refer instances of uncertainty to Architect for resolution.
  3. Owner will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
  4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.
- C. Record CAD Drawings: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected CAD Drawings of the Contract Drawings, as follows:
1. Format: Same CAD program, version, and operating system as the original Contract Drawings.
  2. Format: **DWG**], operating in **Windows NT** operating system.
  3. Incorporate changes and additional information previously marked on Record Prints. Delete, redraw, and add details and notations where applicable.
  4. Refer instances of uncertainty to Architect for resolution.

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5. Architect will furnish Contractor one set of CAD Drawings of the Contract Drawings for use in recording information.
  - a. Architect makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Contract Drawings.
  - b. CAD Software Program: The Contract Drawings are available in AUTOCAD 2000.
  
- D. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
  1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
  2. Consult with Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
  
- E. 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. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
  3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
  4. 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.

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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 the manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Drawings, **[and] [Product Data]** 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 Drawings, **and Product Data** 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 01781**

SECTION 01 79 00  
DEMONSTRATION AND TRAINING

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 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.

- B. Related Sections include the following:

1. Division 1 Section "Allowances" for administrative and procedural requirements for demonstration and training allowances.
2. Division 1 Section "Project Management and Coordination" for requirements for pre-instruction conferences.
3. Division 1 Section "Photographic Documentation" for preparing and submitting demonstration and training videotapes.

- C. Allowances: Furnish demonstration and training instruction time under the Demonstration and Training Allowance as specified in Division 1 Section "Allowances."

- D. Unit Price for Instruction Time: Length of instruction time will be measured by actual time spent performing demonstration and training in required location. No payment will be made for time spent assembling educational materials, setting up, or cleaning up.

1.3 SUBMITTALS

- A. Instruction Program: Submit **[four]** copies of 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.

1. At completion of training, submit **[four]** complete training manual[s] for Owner's use.

- B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

- C. Attendance Record: For each training module, submit list of participants and length of instruction time.

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- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.
- E. Demonstration and Training Videotape: Submit **[four]** copies at end of each training module.

1.4 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 1 Section "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Pre-instruction Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
  - 1. Inspect and discuss locations and other facilities required for instruction.
  - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
  - 3. Review required content of instruction.
  - 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.5 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. 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 (as applicable)

- 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, and as follows:
  - 1. Motorized doors, including **[overhead coiling doors]** .

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2. Equipment, including **[residential appliances]**.
  3. Fire-protection systems, including **[fire alarm] [fire pumps] [and] [fire-extinguishing systems]**.
  4. Intrusion detection systems.
  5. Conveying systems, including **[elevators]**.
  6. Medical equipment, including medical gas equipment and piping.
  7. Heat generation, including **[boilers] [feedwater equipment] [pumps] [steam distribution piping] [and] [water distribution piping]**.
  8. Refrigeration systems, including **[chillers] [cooling towers] [condensers] [pumps] [and] [distribution piping]**.
  9. HVAC systems, including **[air-handling equipment] [air distribution systems] [and] [terminal equipment and devices]**.
  10. HVAC instrumentation and controls.
  11. Electrical service and distribution, including **[transformers] [switchboards] [panelboards] [uninterruptible power supplies] [and] [motor controls]**.
  12. Packaged engine generators, including transfer switches.
  13. Lighting equipment and controls.
  14. Communication systems, including **[intercommunication] [surveillance] [clocks and programming] [voice and data] [and] [television]** equipment.
- 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 the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
    - h. Performance curves.
  2. Documentation: Review the following items in detail:
    - a. Emergency manuals.
    - b. Operations manuals.
    - c. Maintenance manuals.
    - d. Project Record Documents.
    - e. Identification systems.
    - f. Warranties and bonds.
    - g. Maintenance service agreements and similar continuing commitments.
  3. Emergencies: Include the following, as applicable:
    - a. Instructions on meaning of warnings, trouble indications, and error messages.
    - b. Instructions on stopping.

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- c. Shutdown instructions for each type of emergency.
  - d. Operating instructions for conditions outside of normal operating limits.
  - e. Sequences for electric or electronic systems.
  - f. Special operating instructions and procedures.
  
4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - l. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
  
5. Adjustments: Include the following:
  - a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.
  - d. Economy and efficiency adjustments.
  
6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
  
7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
  
8. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.



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- d. Instructions for identifying parts and components.
- e. Review of spare parts needed for operation and maintenance.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
- B. Set up instructional equipment at instruction location.

**3.2 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. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
  - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
  - 3. Owner will furnish Contractor with names and positions of participants.
- 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]** days' advance notice.
- D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of **[a written]** performance-based test.
- E. Demonstration and Training Videotape: Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
  - 1. Comply with requirements in Division 1 Section "Photographic Documentation."
  - 2. At beginning of each training module, record each chart containing learning objective and lesson outline.
- F. Cleanup: Collect used and leftover educational materials and **[give to Owner]**. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

**END OF SECTION**

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PART 1 - GENERAL

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section requires the selective removal and subsequent offsite disposal of the following as indicated on the drawings:
1. Portions of existing building indicated on drawings.
  2. Removal of interior partitions as indicated on drawings.
  3. Removal of doors and frames indicated "remove."
  4. Removal of built-in casework indicated "remove."
  5. Removal of spray-on fire protection on steel structure.
  6. Removal and protection of existing fixtures, materials, and equipment items indicated "salvage."
  7. Removal of existing floor finishes.
  8. Removal of existing ceiling panels and suspension grid.
  9. Removal of all mechanical, electrical and plumbing systems and all related components, accessories, etc.
- B. Removal work specified elsewhere:
1. Cutting floors, ceilings, and masonry walls for piping, ducts, and conduits is included with the work of the removal of materials for reuse and incorporation into remodeling or new construction.

**1.3 SUBMITTALS**

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections. The electrical services for the Annex also serves the Historic Courthouse. The Historic Courthouse will be occupied at all times and the Annex will have portions of it occupied after the work is completed. Therefore, ensure that all services serving the Historic Courthouse and undisturbed areas of the Annex remain in place and operable. This includes the Sprinkler System, Fire Alarm System, Emergency Power, Power, Plumbing systems, and any mechanical systems as indicated.
- B. Schedule indicating proposed sequence of operations for selective demolition work to Owner's

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Representative for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.

1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
  2. Coordinate with Owner's continuing occupation of portions of existing building and with Owner's partial occupancy of completed new addition.
- C. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner's Representative prior to start of work.

**1.4 JOB CONDITIONS**

- A. Occupancy: Owner will not occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in a manner that will minimize need for disruption of Owner's normal operations in adjacent buildings.
- B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.
1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.
- C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.
1. Storage or sale of removed items on site will not be permitted.
- D. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.
1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.
  2. Erect temporary covered passageways as required by authorities having jurisdiction.
  3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.
  4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
  5. Protect floors with suitable coverings when necessary.
  6. Construct temporary insulated dustproof partitions where required to separate areas where

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- noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks.
7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
  8. Provide negative pressure and all other remediation means and requirements while removing any hazardous materials.
  9. Remove protections at completion of work.
- E. Damages: Promptly repair damages caused to adjacent facilities by demolition work.
- F. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- H. Utility Services: Maintain existing utilities in service and protect them against damage during demolition operations.
1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
  2. Maintain fire protection services during selective demolition operations.
- I. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. General: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.

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1. Cease operations and notify Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
2. Cover and protect furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.
3. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.
  - a. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 3-5/8" studs, 5/8-inch drywall (joints taped) on occupied side, 1/2-inch fire-retardant plywood on demolition side. Fill partition cavity with sound-deadening insulation.
  - b. Provide weatherproof closures for exterior openings resulting from demolition work.
4. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.
  - a. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.

**3.2 DEMOLITION**

- A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
  2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
  3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
  4. Demolish foundation walls to a depth of not less than 12 inches below existing ground surface. Demolish and remove below-grade wood or metal construction. Break up below-grade concrete slabs.
  5. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
  6. Completely fill below-grade areas and voids resulting from demolition work. Provide fill

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consisting of approved earth, gravel, or sand, free of trash and debris, stones over 6 inches in diameter, roots, or other organic matter.

- B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

**3.3 SALVAGED MATERIALS**

- A. Salvaged Items: Where indicated on Drawings as "Salvage - Deliver to Owner," carefully remove indicated items, clean, store, and turn over to Owner and obtain receipt. Also, Owner will review the extent of items to be salvaged with the Contractor prior to removal.

**3.4 DISPOSAL OF DEMOLISHED MATERIALS**

- A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.
1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
  2. Burning of removed materials is not permitted on project site.
- B. See Hazardous Materials Report.

**3.5 CLEANUP AND REPAIR**

- A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

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PART 1 - GENERAL

1.01 SCOPE

- A. This section shall include all labor, materials, accessories, equipment, and related services for the construction of concrete forms; detailing, fabrication, transportation, storage, handling, and placement of reinforcing; and mix design, testing, and placement of concrete as shown on the drawings and/or specified herein.

1.02 REFERENCE STANDARDS

- A. The following publications, but referred to in this section by their basic designation, form a part of this section to the extent specified herein or called for on the drawings:
1. American Concrete Institute (ACI), publications:
    - a. Standard Tolerances for Concrete Construction and Materials.
    - b. Specification for Structural Concrete for Buildings.
    - c. Recommended Practice for Measuring, Mixing, and Placing Concrete.
    - d. Hot weather Concreting.
    - e. Cold Weather Concreting.
    - f. Standard Practice for Consolidation of Concrete.
    - g. Building Code Requirements for Reinforced Concrete.
    - h. Recommended Practice for Concrete Formwork.
    - i. Recommended Practice for Shotcreting.
    - j. Detailing Manual
  2. Concrete Reinforcing Steel Institute (CRSI), publications:
    - a. CRSI-Manual of Standard Practice
    - b. CRSI-Placing Reinforcing Bars
  3. American Society for Testing and Materials (ASTM) publications:
    - a. Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement.
    - b. Standard Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement with Supplementary Requirements S1.
    - c. Standard Specification for Rail Steel Deformed and Plain Bars for Concrete Reinforcement.
    - d. Standard Specification for Axle Steel Deformed and Plain Bars

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- for Concrete Reinforcement.
- e. Standard Method of Making and Curing Concrete Test Specimens in the Field.
- f. Standard Specification for Concrete Aggregates.
- g. Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens.
- h. Standard Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- i. Standard Specification for Ready-Mixed Concrete.
- j. Standard Specification for Aggregate for Masonry Mortar.
- k. Standard Specification for Portland Cement.
- l. Standard Method of Sampling Fresh Concrete.
- m. Standard Method of Making and Curing Concrete Test Specimens in the Laboratory.
- n. Standard Specification for Air-Entraining Admixtures for Concrete.
- o. Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- p. Standard Specification for Chemical Admixtures for Concrete.
- q. Standard Specifications for Performed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resistant Bituminous Types)
- 3. American Welding Society (AWS) publication
  - a. AWS D1.4-79 Structural Welding Code-Reinforcing Steel.
- 4. Standard Building Code
- 5. American Institute of Steel Construction (AISC) publications:
  - a. Manual of Steel Construction
- 6. American Institute of Timber Construction (AITC) publications:
  - a. Timber Construction Manual

1.03 SUBMITTALS

- A. The Contractor shall submit to the Architect five (5) copies of the following information for review:
  - 1. Curing compound manufacturer's data sheets.
- B. Two copies will be returned to the Contractor marked as follows:



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1. "No Exceptions Taken" - Indicates the information has been reviewed for conformance with contract documents and no exceptions have been taken. Proceed with the work.
  2. "Exceptions Noted" - Indicates that the drawings have been reviewed for conformance with the contract documents and that exceptions have been taken. Contractor may proceed with the work provided he corrects work as noted. Resubmittal will not be required.
  3. "Exceptions Noted - Resubmit" - Indicates that the drawings have been reviewed for conformance with the contract documents and that work may proceed on items to which no exceptions have been taken. After items to which exceptions have been taken are corrected, Contractor shall again submit copies for review.
  4. "Resubmit" - Indicates that the drawings have been reviewed for conformance with the contract documents and are too incomplete or in an unacceptable condition for review. A notation will be made on the shop drawings as to the exceptions taken. Drawings shall be revised and resubmitted for review before proceeding with the work.

1.04 DESIGN OF FORMWORK

A. Responsibility

1. The design and engineering of the formwork as well as its construction shall be the responsibility of the Contractor.
2. Where concrete is cast against earth cut or an existing structure, such cut or structure shall be considered a form for which the Contractor shall be responsible.

B. Criteria

1. Except as specifically called for otherwise herein, all formwork shall meet the requirements of ACI 347, Chapter 4 and 6 of ACI 301 and Chapter 6 of ACI 318.
2. Specifically the formwork shall be designed as a minimum for the loads and lateral pressure outlined in paragraph 1.2 of ACI 347 and wind loads specified by the Standard Building Code. Design considerations and allowable stresses shall meet the above references and the applicable requirements of the AISC Manual of Steel Construction and the AITC Timber Construction Manual.

1.05 MIX DESIGN

- A. Prior to concrete placement of any concrete, the concrete mix design the Contractor proposes to use for each type of concrete shall be submitted to the Architect for review.
- B. The Concrete mix shall be proportioned to give a 28-day strength of the properties outlined in the

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drawings (e.g. 3,000/5000 psi) and other properties as specified herein as determined by laboratory tests in accordance with requirements specified herein.

- C. The laboratory or laboratories which design and test the concrete mix shall be obtained by the Contractor, approved by the Architect and paid for by the Contractor.

**1.06 TESTING OF CONCRETE**

- A. A laboratory shall be obtained by the Contractor approved by the Architect and paid for by the Contractor for the purpose of sampling and testing of concrete.
- B. The following samples shall be taken at the job site. If any material has been added to the concrete, tests shall be made after material has been added to the concrete.
1. For each 100 cubic yards, or fraction thereof, of concrete three test specimens shall be made and cured in accordance with ASTM C172 and C31. Each set of three cylinders shall have a numerical designation and each cylinder an alphabetical subdesignation. Thus, the first set of three cylinders shall be numbered 1A, 1B, and 1C. One cylinder shall be broken at 7 days and two at 28 days. The average of the two 28-day cylinder breaks shall be considered one test. Cylinders shall be broken in accordance with ASTM C39.
  2. For each 100 cubic yards, or fraction thereof, of concrete a slump test shall be made in accordance with ASTM C143 and the density and air content shall be determined in accordance with ASTM C172 and C31.

**1.07 SHOP DRAWINGS**

- A. The Contractor shall furnish drawings, schedules, and details for the fabrication of the reinforcing steel AND the phasing of excavation and new concrete placement. The drawings and details shall be so complete that when used with the contract drawings the reinforcing steel can be properly placed. In addition, shop drawings showing all footing details, CMU details and slab details. All shop related shop drawings to be submitted with a professional engineer's stamp in this discipline.
- B. In case the Contractor is in doubt regarding certain dimensions shown on the contract drawings, or if there is a discrepancy on the contract plans, the Contractor or his agent shall circle and question such dimensions on his shop drawings. In such cases the dimensions shall be especially checked or supplied by the Architect.
- C. All drawings for review must be submitted in five copies. Two sets shall be returned to the Contractor marked as follows:
1. "No Exceptions Taken" - Indicates the material has been reviewed for conformance with

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contract documents and no exceptions have been taken. Proceed with the work.

2. "Exceptions Noted" - Indicates that the material has been reviewed for conformance with the contract documents and that exceptions have been taken. Contractor may proceed with the work provided he corrects the work as noted. Resubmittal will not be required.
  3. "Exceptions Noted - Resubmit" - Indicates that the material has been reviewed for conformance with the contract documents and that work may proceed on items to which no exceptions have been taken. After items to which exceptions have been taken are corrected, Contractor shall again submit copies for review.
  4. "Resubmit" - Indicates that the material has been reviewed for conformance with the contract documents and is too incomplete or in an unacceptable condition for review. A notation will be made as to the exceptions taken. Material shall be revised and resubmitted for review before proceeding with the work.
- E. In case exceptions are noted on one sheet which affect details on other sheets, the exception is to be taken as applying to such other details.
- F. Review of shop drawings by the Architect or Engineer shall not constitute an authorization or approval of a change to the contract. Changes from the contract documents must be made by written change order and issued by the Architect.
- G. Work must not proceed on items to which exceptions have been taken.
- H. The Contractor must check and be responsible for the conforming of all steel reinforcing details shown on shop drawings to those shown on the Contract drawings.
- I. All bars shall be shown on shop drawings as to number, size, length, and spacing in a manner similar or complementary to the way they are shown on contract drawings.

1.08 QUALITY CONTROL

- A. Should misalignment of forms or screeds or deflection of forms or displacement of reinforcement occur during concrete placing, corrective measures shall be immediately made to the extent that placing operations shall be stopped and concrete removed from within forms. The corrective measures shall be such as to ensure acceptable lines and surfaces to the prescribed dimensions and cross sections.
- B. Any work not meeting the requirements of this section shall be deemed in non-compliance and shall be removed or corrected at no additional expense to the Owner.
- C. The Contractor shall prepare for the Architect's review his proposed method of removal or correcting any work which is in non-compliance prior to commencing with the work.
- D. Any work which is in non-compliance and is allowed to remain in place by the Architect shall be made a part of this contract by issuing a change order as set forth in the General Conditions of this

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specification.

- E. Should displacement of reinforcing steel occur during concrete placement, corrective measures shall be immediately made to the extent that placing operations shall be stopped and concrete removed from within the forms.
- F. To comply with this specification, concrete shall obtain its design strength at the 28-day break. Any concrete not obtaining its design strength as determined by the 28-day break shall be considered as not complying to this specification.
- G. The results of the concrete tests shall be evaluated in accordance with paragraphs 17.2 of ACI Standard 301.
- H. If compressive tests fail to meet the specified strength, the following procedures shall be followed: The Architect shall determine if the concrete has been placed in a position of critical structural importance. If the concrete has been placed in a position of critical structural importance, the Contractor shall have core tests made by a testing laboratory approved by the Architect. Core tests shall be done in accordance with ASTM C42 and paragraph 17.3.2 of ACI Standard 301. These core tests shall be taken in each area in question. Such tests shall be paid for by the Contractor. If core tests fail to verify the design strength requirements, the Contractor will have two options:
  - 1. Remove and reconstruct that portion of the structure found to be defective. Removal and replacement will not be undertaken until a plan and procedure has been proposed by the Contractor and approved by the Architect. All such work shall be done at the Contractor's expense.
  - 2. Have a testing laboratory approved by the Architect conduct a load test on the questionable portion of the structure in accordance with Chapter 20 of ACI Building Code 318. If the test demonstrates that the member or members are not acceptable under the provisions of Chapter 20, Option One becomes mandatory. All costs of the load test shall be paid for by the Contractor.
- I. If tests, either by the 28-day break or core tests, have demonstrated that concrete supplied has not met the strength requirements of the specifications, but the concrete has been permitted to remain in place in the structure by the Architect, a change order shall be issued as set forth in the General Conditions Section of these specifications.

PART 2 - PRODUCT

2.01 FORMS

- A. Forms for unexposed work or surfaces covered by a non-contact finish.

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1. Where work is to be covered by a non-contact finish or not exposed to view, forms of metal, metal and wood, wood, or a pre-engineer forming system will be accepted.
- B. Forms for exposed work or surfaces covered by a contact finish.
  1. Where work is to be left exposed, or concrete surface is covered by a contact finish, forms shall either be plywood, lined plank, or patented type panels. All plywood shall receive non-staining protective coating that affords positive release.
  2. Forms shall not be reused when the surface material delaminates, splits, or becomes marred.

**2.02 APPURTENANCES**

- A. Form Ties
  1. Except for exposed work or Architecturally exposed concrete, snap ties may be used for wall forms. Pull ties, which are to be completely removed, or cone type break back ties that will leave clean cut holes without fractures, spalls, shallows, depressions, or other disfigurations shall be used for all exposed work, and Architecturally exposed concrete.
- B. Expansion Joint Material
  1. Expansion joint material shall meet ASTM C1751.

**2.03 REINFORCING**

- A. Reinforcing steel shall meet ASTM A-615, ASTM 616, or ASTM 617, and develop 60,000 psi at yield.
- B. Wire mesh shall meet ASTM A-185.

**2.04 ACCESSORIES**

- A. Bar supports shall meet the requirements of CRSI, Manual of Standard Practice, unless specified otherwise herein.
- B. Legs of all accessories used over exposed concrete surfaces shall have that portion of the accessories in contact with the form coated with plastic, or the accessory shall be of stainless steel.

**2.05 CEMENT**

- A. All cement used on this construction for exposed concrete shall be one brand of Portland cement. All cement shall be Type 1 and meet the requirements of ASTM 150.

**2.06 AGGREGATES**

- A. Samples of both coarse and fine aggregates shall be selected by the Contractor at the beginning of the

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work, and following approval of laboratory tests, shall be used throughout the work as standards to which the aggregate must conform.

1. Fine aggregates shall conform to ASTM C33.
2. Coarse aggregates for regular weight concrete shall conform to ASTM C33 and shall be sized within the limits as established by Table 2, 1" to #4.

2.07 WATER

- A. Water shall be clean, free from oil, acid, vegetable matter, alkalis or salts.

2.08 ADMIXES

- A. Admixes shall conform to ASTM C-494 and not contain any chloride ions.

2.09 AIR ENTRAINMENT

- A. Air entraining agent shall conform to ASTM C260.

2.10 ABRASIVE AGGREGATES

- A. Abrasive aggregates shall be aluminum oxide or carborundum and have a hardness factor of 9 mohs.

2.11 CURING COMPOUND

- A. Curing compound for unformed surfaces without a surface applied cementitious bonding agent or fill.

1. Curing compound shall be formulated by the manufacturer not to interfere with the bond of or adhesion of resilient floor coverings, paints, sprayed on or applied finishes, water-proofing materials, other types of finish, or curing compounds.
2. Curing compound shall be a combination sealer-hardener and dust-proofer.
3. Curing compound shall be a membrane forming resin containing 18% minimum solids with a fugitive dye meeting the requirements of ASTM C309, Type 1-D, Class A.
4. The following products are approved:

Spartan Cote	-	The Burke Company
Rez. Seal	-	Euclid
SealCo	-	Gifford Hill
Clearbond	-	Guardian
Dress & Seal #18	-	L&M Construction Chemicals
Clear Seal 150	-	AC Horne

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MB429	-	Master Builders
Kure-N-Seal, 0800	-	Sonneborn
C5309	-	WR Meadows

- B. Curing compounds for formed concrete surfaces exposed to view.
1. Curing compound shall be formulated not to interfere with the bond or adhesion of any applied coating or covering.
  2. Curing compound shall be a penetrating compound with a fugitive dye meeting the requirements of ASTM C309, Type 1D.
  3. The following products are approved.

Cure Concentrate	-	The Burke Co
Eucosil	-	Euclid
L&M Cure	-	L&M Construction Chemicals
Horne One Kote	-	AC Horne
Master Seal	-	Master Builders

**2.12 PROPORTIONS**

- A. All concrete shall provide the ultimate compressive strength at 28 days, as determined by laboratory cured cylinders, as shown on the drawings. All mix designs shall be proportioned in accordance with one of the following methods.
1. ACI 318, Section 4.3, Proportioning on the basis of field experience and/or trial mixtures.
  2. ACI 318, Section 4.4, Proportioning by water cement ratio.
- B. The mix shall be so proportioned so that the average of any three consecutive strength tests shall be equal to or greater than the strength specified on plans, and no test shall have a value less than the specified strength less 3000 psi.
- C. Minimum cement content for regular concrete shall be as follows:
1. REGULAR WEIGHT CONCRETE:  
  
3,000 psi concrete 498# (5.3 bags)  
5,000 psi concrete 705# (7.5 bags)  
For pump mixes add 47# (0.5 bags) to the above quantities.
- D. The water-cement ration of the mix shall be established in the design and shall be based on the established relationship between the water-cement ration and the strength of concrete shall be such as to produce the specified strength of the concrete with the least amount of water consistent with the

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workability of the mix. Surface water contained in the aggregate shall be included as part of the mixing water in computing the water content. The design shall provide for a slump range of 3" minimum, 5" maximum.

E. To each sack of cement the following amount of admix shall be provided:

1. Air temperature above 80 degrees F

- 3 oz. - Master Builders - Pozzolith 300R
- 3 oz. - Protex PDA 25XL
- 2 oz. - Sika Chemical Co. - Plastement
- 2 oz. - Gifford Hill PSI - Normal
- 2 oz. - Castle Chemical Corp. - Chemstrong R
- 2 oz. - Construction Chemical Co - Trisene N
- 5 oz. - Grace - WRDA-79

2. Air Temperature between 50 and 80 degrees F.

- 3 oz. - Master Builders Pozzolith 300N
- 3 oz. - Protex PBA 25R
- 3 oz. - Sika Chemical Co. - Plastement NS
- 3 oz. - Gifford Hill PSI - Retarder
- 3 oz. - Castle Chemical Corporation - Chemstrong A
- 3 oz. - Construction Chemical Co - Trisene R
- 7.5 oz. - Grace - WRDA

3. Air temperature below 50 degrees F.

- 8 oz. - Master Builders - Pozzutec 20
- 8 oz. - Sika Chemical Co. - Plastorcrete 161 PC
- 12 oz. - Grace - Darex

2.13 FABRICATION

A. All reinforcing shall be fabricated. Fabrication shall be in accordance with applicable sections, ACI 301,



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ACI 318, ACI-SP66, and CRSI Manual of Standard Practice. All bends shall be made cold around pins having a diameter of not less than that specified in the bend test of the applicable ASTM specifications. Heating bars for bending is prohibited without the written approval of the Architect.

- B. Reinforcement shall be correct in length and size and bent as prescribed by contract drawings or specifications.

**PART 3 - EXECUTION**

**3.01 PREPARATION**

**A. Excavations**

1. Where excavations exceeding a depth of five feet are to be made to install the foundations or any part of the structure of this building or any retaining walls on the site, the back slope of such excavation shall be at an incline not exceeding one vertical to two horizontal unless such backslope is sheeted and braced. If sheeting and bracing are to be provided, such sheeting and bracing shall be designed by an Engineer registered in the state where the project is located. Such sheeting and bracing shall be designed to resist the pressures given on pages 14-32 of the CRSI Design Handbook unless more specific pressures are determined by a Registered Soils Engineer. The cost of such design work and installation shall be paid for by the Contractor at no additional cost to the Owner.
2. No excavation shall be made below a line extending downward and away from any foundation grade slab or other building element on a slope one vertical or two horizontal, unless such foundation, grade slab, or other building element is under pinned. The underpinning shall be designed by an Engineer registered in the state where the project is located. The cost of such design work and installation shall be paid for by the Contractor at no additional cost to the Owner.

- B. Treat excavated soil for termites as required by industry standards.

**C. Care of Materials**

1. Shipping, storage and handling of reinforcing steel shall be in such a manner as to prevent damage.
2. Straightening of bars bent in shipping or handling will not be undertaken except when so directed by change order.

**D. Cleaning**

1. Reinforcing shall be cleaned of grease, dirt, concrete, or other foreign substances.

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3.02 INSTALLATION

A. Construction of Forms

1. All forms shall be built and secured in place to carry the dead weight of the concrete as a liquid without deflection or distortion exceeding the requirements of ACI 347. Formwork shall be built watertight, true to position and direction. Formwork shall be constructed so as to ensure the concrete surfaces will conform to the tolerances given in ACI 347.
2. All concrete surfaces that are to be left exposed on interior and exterior of the building shall have the forms so constructed that when removed they will produce a uniform smooth surface free from misalignment and imperfections.
3. Where new concrete is placed above a previous placement, the joint between new and old work, as well as the face of the concrete surface, must be aligned.
4. All wood forms shall be built of sound lumber. Clean and remove nails from form material before reusing or when using second-hand lumber.
5. Unless indicated otherwise on the drawings, all columns shall be centered on the foundations supporting them within a tolerance of 2".
6. Where earth is too unstable to serve as a form for foundations or walls, wood forms shall be provided.
7. Box out all slots, recesses, or openings for work of all trades.
8. Build bulkheads with keys in walls and footings at construction joints in concrete.
9. Bevel strips shall be placed at all outside corners of exposed work unless shown otherwise on architectural details.
10. All overhanging edges shall be provided with a 1/2" quarter round drip 2" from the edge.

B. Installing other material in forms

1. Expansion joint fillers shall be installed in the forms, where called for on plans, in advance of the pour. 8d nails of 2'-0" o.c. shall be placed through the filler so that when concrete is placed, the nails will be embedded so as to lock the filler in place.
2. Compact earth fill under slabs on grade in eight inch layers with mechanical equipment to obtain a compaction of 95% standard proctor, unless specified otherwise.
3. Provide 6 mil polyethylene film vapor barrier under all slabs on grade.
4. Fill for slabs on grade shall be #57 stone, 4" thick, where shown on drawings.

C. Placement of Reinforcement

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1. Reinforcement shall be placed to conform with the recommendations of ACI 301, ACI 318, and CRSI Manual of Standard Practice.
  2. Bars shall not be cut or bent in the field unless specifically called for on detail drawings.
  3. Bars with kinks or bends not shown on detail drawings shall not be used.
  4. Contract drawings shall take precedence over Contractor's working drawings unless otherwise authorized by written change order.
  5. Contract drawings shall be referred to by the steel setter for details governing placing.
  6. Vertical steel shall be lapped 30 diameters at splices unless specifically called for otherwise on plans.
  7. Steel dowels for successive work shall be wired in the prescribed position before placing concrete. The "sticking" of dowels after placing concrete will not be permitted.
  8. Hooks may be turned flat to facilitate placement.
  9. Concrete covering for reinforcing steel shall be as follows unless shown otherwise on drawings:
    - a. Concrete cast against and permanently exposed to earth: 3"
    - b. Concrete exposed to earth or weather:  
#6 through #18 bars: 2"  
#5 bar, W31 or D31 wire, and smaller: 1-1/2"
    - c. Concrete not exposed to weather or in contact with ground:  
Slabs, walls  
#14 and #18 bar: 1-1/2"  
#11 bar and smaller: 3/4"
  10. No splicing of main reinforcing steel will be permitted unless shown otherwise on plans. Bars marked continuous shall be lapped 30 diameters at splices, and at corner conditions corner bars shall be provided.
  11. No reinforcing shall be cut in the field unless it is called for to be cut on the reviewed shop drawings.
  12. No reinforcing shall be bent in the field unless it is called for to be bent on the reviewed shop drawings.
- D. Placement of Wire Mesh
1. Welded wire fabric shall be lapped 6" at both side and end laps unless shown otherwise on drawings and wire together at 18" o.c. Mesh shall extend to within 2" of sides and end of slabs.

3.03 WELDING OF REINFORCEMENT

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- A. All reinforcing bars which are to be welded shall be welded in accordance with AWS D1.4.

**3.04 MIXING**

- A. All materials shall be measured and mixed in a machine. Mixing and transporting shall meet ASTM C94. The materials shall first be mixed dry and the water then added by measurement.
- B. Mixing time shall begin when the water is added to the mix.
- C. Water shall not be added to the mix at the job site except under the direction of the laboratory responsible for testing (paragraph 1.06). The laboratory shall instruct that a fixed amount of cement shall be added to maintain the water-cement ratio. The mixer shall be turned 50 revolutions after the addition of water.
- D. A slump test shall be made of any concrete to which water has been added to ascertain that the slump does not exceed 5" for regular mixes and 6" for pump mixes.
- E. A record shall be kept of any concrete to which water has been added, and the record shall show the results of the slump test.

**3.05 PREPARATION**

- A. Before the placing of any concrete the footing trenches shall be drained of water, any mud film removed and any loose dirt lifted out.
- B. Before placing concrete in forms the forms shall be cleaned and all debris removed. All reinforcing shall be checked to be sure that no reinforcing is touching the form or pan sides. A man shall be designated during the pour to keep the steel in the prescribed position.
- C. Before placing any concrete it shall be determined that all conduits, pipes, sleeves, inserts, hangers, steel equipment, grounds, anchors, and other work that is to be built into the concrete is located and installed. All such items shall be so placed as not to interfere with the reinforcing steel.
- D. No concrete shall be placed until the Architect has observed the reinforcement.
- E. Wood board forms shall be soaked with water first before the concrete is placed.
- F. Metal forms shall be oiled before reinforcement is placed.
- G. All reinforcement shall be supported and fastened in prescribed position and protected against displacement during pouring operations.
- H. A workman shall be designated to lift mesh reinforcing off the ground or the bottom of forms as concrete is placed.
- I. Concrete temperature at time of placement shall be as follows:

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Temperature F Degrees	Concrete Temperature Maximum	F Degrees Minimum
Above 75	90	75
50 - 75	90	75
40 - 50	90	65
30 - 40	90	55
0 - 30	90	65
Below 0	90	70

J. Cold Weather Concreting

1. Cold weather concreting procedures shall be used when temperature at job site is 40 degrees or below at time of concrete placement as follows:
  - a. Heat ingredients as necessary to produce a mix temperature at time of placement as specified herein.
  - b. Concrete shall be heated, insulated, and protected as necessary to maintain a concrete temperature of 40 degrees F minimum for 72 hours after placement.
  - c. Accelerating agents shall not be used unless approval from the Architect has been obtained.
2. ACI 306R should be used as a guide in determining proper procedures for cold weather concreting.

K. Hot Weather Concreting

1. Hot weather concreting procedures shall be used when temperature a job site is 75 degrees F or above at time of concrete placement or wind or humidity is such to result in shrinkage cracking as follows:
  - a. Cool materials necessary to produce a mix temperature at time of placement as specified herein.
  - b. Mix time shall not exceed one hour from time of initial mix.
  - c. Concrete once discharged from truck shall be placed in its final position within 30 minutes from time of discharge.
  - d. Placed concrete shall be cooled or protected as necessary to maintain a concrete temperature of 120 degrees maximum for 48 hours after placement.
  - e. Retarding agents shall not be used unless approval from the Architect has been

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obtained.

2.ACI 305R should be used as a guide in determining proper procedures for cold weather concreting.

3.06 TRANSPORTING CONCRETE

- A. Concrete shall be handled from the mixer to the place of final deposit by means of carts, buggies, conveyor, or pump in accordance with ACI 304. If the concrete is to be transported more than fifty feet in carts or buggies they shall be equipped with pneumatic tires. Concrete delivered to the carts, buggies, or conveyors from spouts, troughs or mixer trucks shall not have a free fall of more than three (3) feet. Prevent separation or loss of ingredients while transporting the concrete.

3.07 CASTING

- A. It shall be the responsibility of the Contractor to consider the temperature and humidity in scheduling the time interval between mixing and placing. No partially hardened concrete shall be placed. Placement shall meet the requirements of ACI 304.
- B. Special care shall be observed to avoid concrete spilling over forms when placing.
- C. Placing of concrete shall be rapid and continuous between construction joints. Concrete shall not be placed when the sun, wind, heat, or humidity prevent placement and consolidation.
- D. Special care shall be taken in spading concrete around gangs of parallel conduit.
- E. Concrete shall not be placed within twenty-five feet of workmen placing or securing reinforcement.
- F. Internal type mechanical vibrators and hand spading shall be used to consolidate the concrete and produce a dense concrete free from voids and honeycombs. Care shall be taken that vibration is not applied long enough to separate the ingredients. Use and type of vibrators shall conform to ACI 309.
- G. Hand spreading shall be done with shovels not rakes.
- H. Before depositing the new concrete on or against concrete that has hardened, the forms shall be retightened, the surface of the hardened concrete roughened, cleaned of foreign matter than laitance and moistened with water. To ensure mortar at the juncture of the hardened and newly deposited concrete, the cleaned and moistened surface of the hardened concrete, including vertical and inclined surfaces, shall first be slushed with a coating of neat cement grout against which the new concrete shall be placed before the grout has attained its initial set. Before starting to place concrete in walls and columns a uniform layer of grout two inches thick shall be placed at the bottom of the forms or on top of the hardened concrete. The grout shall consist of one part cement and two

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parts sand with enough water to make a thick consistency.

- I. All horizontal surfaces shall be screeded to an even surface by the use of a straight edge and screeding strips set at the level called for on plans. Screeds shall be of such type and so arranged as not to interfere with the top slab steel. Finish is specified in a following section.

**3.08 PROTECTION**

- A. Workmen shall not walk on concrete during placing or finishing with any earth or foreign matter on footgear.
- B. All freshly placed concrete shall be protected from damage or injury due to water, falling objects, persons or anything that might mar, discolor, or injure the finish surface of the concrete. Any surfaces that are damaged due to lack of protective measures shall be removed and replaced with fresh concrete at the expense of the Contractor.

**3.09 FLOOR FINISHING**

- A. Floors, except those requiring a special finish, shall be finished as follows:
  1. The surface of all concrete slabs, after screeding, shall be worked with a float in a manner which will compact the concrete and produce a surface free of depressions or inequalities of any kind. Test for grade (or level) and correct by removing excess or adding and compacting additional concrete.
  2. All floor slabs, except in areas dropped to receive finish, shall receive a steel trowel finish as follows:
    - a. After screeding and floating slab surface and when concrete has hardened to prevent excess fines from working to the surface and surface water has disappeared, steel trowel slab to a smooth surface free from defects.
    - b. After initial troweling and when surface produces a ringing sound as trowel is moved across surface, steel trowel the slab a second time. The drying of the surface moisture must proceed naturally and must not be hastened by sacking or dusting on of sand or cement.
  3. Areas which are dropped to receive a finish, after floating, shall be roughened with a very coarse broom.
  4. All concrete ramps, docks, and stair treads shall be dusted with abrasive aggregates at the rate of 25 pounds per 100 square feet. Abrasive aggregates shall be worked into concrete surface by trowelling.

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3.10 CURING OF CONCRETE

A. Unformed Horizontal Surfaces

1. As soon as sheen of surface water has disappeared and the surface can be walked upon without damage (one or two hours) concrete surfaces shall be cured as follows:
  - a. All interior slabs with resilient tile, carpet or left exposed shall be cured with the specified curing and sealing compound.
  - b. All other interior slabs shall be cured with the specified dissipating resin type curing compound.
  - c. All vertical surfaces shall be cured with the specified curing and hardening compound when forms are removed prior to completion of the curing period.
  - d. The curing compounds must be applied immediately after final finishing.
  - e. Where required, the curing and hardening compounds shall be applied to vertical surfaces immediately after forms have been removed.
  - f. Sisalkraft paper, placed in a manner approved by the Engineer, may be used for any surface indicated above to be cured with the dissipating resin compound or the curing and hardening compound.
2. Surface traffic shall not be permitted on curing compound until curing compound is completely dry.

B. Formed Surfaces

1. Formed surfaces which are rubbed after forms are removed shall be covered with the curing and hardening compound at manufacturer's specified rate immediately after rubbing is completed.
2. Formed surfaces which are repaired or patched shall be covered with the curing and hardening compound at manufacturer's specified rate immediately after repairing and/or patching is complete.
3. No coating, sealer or other applied material shall be placed on concrete which received a curing compound until forty-five (45) days after curing compound has been in place.

3.11 TOLERANCES

- A. Tolerances for concrete floor slabs shall meet the requirements of ACI 117, Class BX Slabs.
- B. Where slabs abut at joints the differential elevation between abutting slabs shall be less than 1/16



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inch.

**3.12 EXPOSED CONCRETE SURFACES**

A. Exposed concrete surfaces shall be finished as follows:

1. Surfaces shall be rubbed smooth with carborundum brick or other abrasive within 36 hours after forms are removed. Surfaces shall be wetted and rubbed until a uniform color and texture is produced. No cement grout or slush shall be used other than the cement paste drawn from the green concrete itself by the rubbing process.
2. The first panel that is to be finished shall be done in the presence of the Architect. When it is approved by the Architect, it shall serve as a standard to which all additional architecturally finished concrete shall conform.
3. Edges of exposed beams and columns shall be pointed up to present a straight, square appearance.

**3.13 REMOVAL OF FORMS**

A. Removal

1. Care shall be taken in the removal of the forms not to damage the surface of the concrete. Immediately after the forms are removed, the Architect shall examine the concrete and determine the extent and magnitude of any damaged or imperfect work. The Architect shall determine what work shall be patched and what work shall be removed and rebuilt. Patching, where allowed, shall be done immediately. Patching shall be done as specified in these specifications.
2. The removal of shoring and stripping of forms shall be the responsibility of the Contractor. In no case shall forms for columns or walls be removed in less than two days.
3. All form ties shall be broken back at least 1/2" from the surface of concrete, and pull ties shall be removed.

**3.14 PATCHING AND CORRECTION OF DEFECTIVE WORK**

- A. Any concrete which is not within the allowable tolerances as set forth in ACI 347, Section 203.1 shall be considered as not conforming to these specifications. Any concrete which is not formed as shown on the plans or is out of alignment or level or shows a defective surface shall be considered as not conforming to these specifications.
- B. Any concrete as described above shall be removed from the job by the Contractor at his expense

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unless the Architect grants permission to patch or repair the defective area. Permission to patch or repair any such area shall not be considered a waiver of the Architect's right to require complete removal of the defective work if the patching does not, in his opinion, obtain the quality and appearance of the work as specified.

- C. Within 24 hours after removing form, all concrete surfaces shall be inspected by the Architect. With the Architect's approval any honeycombs, voids, stone pockets and tie holes shall at once be patched before the concrete is dry. Defective areas shall be chipped away to a depth of not less than one inch (1") with the edges perpendicular to the surface. The area to be patched and a space at least six inches (6") wide entirely surrounding it shall be dampened with water to prevent absorption of water from the patching mortar. The specified bonding compound shall be applied to the damp concrete.
- D. The patching shall be made of the same material and of the same proportions as used for the concrete except that the coarse aggregate shall be omitted. The amount of water used in mixing the mortar shall be consistent with the requirements of handling and placing. The mortar shall be retempered without the addition of water by allowing to stand for a period of one hour during which hour it shall be mixed with a trowel to prevent setting.
- E. After the bonding compound has dried, the mortar shall be compacted into place. Every hole and void shall be filled solid and the mortar screeded off to leave the patch slightly higher than the surrounding surface. It shall then be left undisturbed for a period of one to two hours to permit initial shrinkage before being finally finished. The patch shall be finished in such a manner to match the adjoining surface.
- F. Where patching is not accomplished within 24 hours after removal of forms, the shotcrete method of applying concrete under pressure shall be used. Application of shotcrete shall meet ACI 506.
- G. Where concrete or concrete work does not conform to the plans or to the specifications and is condemned by the Architect, procedures and plans covering removal and rebuilding or other corrective measures shall be submitted by the Contractor to the Architect before removal and rebuilding is begun. The cost of such plans, as well as the cost of corrective work or removal and rebuilding shall be at the Contractor's expense.

END OF SECTION

**SECTION 04 21 00**  
**CLAY MASONRY UNITS**

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**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Clay Masonry Units
- B. Reinforcement and Anchorage
- C. Expansion Joints
- D. Mortar
- E. Flashing
- F. Weeps

**1.2 RELATED SECTIONS**

- A. Section 06 11 00 - Wood Framing.
- B. Section 07 16 00 - Cementitious and Reactive Waterproofing.
- C. Section 07 25 00 - WeatherBarriers.
- D. Section 07 27 26 - Fluid-Applied Membrane Air Barriers .
- E. Section 07 62 00 - Sheet Metal Flashing and Trim.
- F. Section 07 65 26 - Self-Adhering Sheet Flashing.
- G. Section 07 90 00 - Joint Protection.

**1.3 REFERENCES**

- A. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
- B. ASTM A 153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- C. ASTM A 615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- D. ASTM A 775 - Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
- E. ASTM A 996 - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.

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- F. ASTM A 1008 - Standard Specification for Steel Sheet, Cold-Rolled Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- G. ASTM C 67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile. 9.
- H. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
- I. ASTM C 150 - Standard Specification for Portland Cement.
- J. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes.
- K. ASTM C 216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
- L. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.
- M. ASTM C 652 - Standard Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale).
- N. ASTM D 1056 - Standard Specification for Flexible Cellular Materials, Sponge or Expanded Rubber.
- O. Brick Industry Association (BIA) - Technical Note 20, Cleaning Brickwork.
- P. TMS 402 - Building Code Requirements for Masonry Structures.
- Q. TMS 602 - Specification for Masonry Structures.

**1.4 SUBMITTALS**

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
- C. Selection Samples: For each finish product specified, two complete sets of brick samples showing range of color and texture to be expected.
- D. Verification Samples: For each finish product specified, two samples representing actual color and texture of the brick specified.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

**1.5 QUALITY ASSURANCE**

**SECTION 04 21 00**

**CLAY MASONRY UNITS**

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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**JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION**

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- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
- C. Brick Tests: Sample and test shall be in accordance with ASTM C 67.
- D. Test Reports:
  - 1. Testing and reports shall be completed by an independent laboratory.
  - 2. Test reports for each type of building and facing brick shall be submitted to the Architect for review.
  - 3. Test reports shall indicate:
    - a. Compressive strength.
    - b. 24 hour cold water absorption.
    - c. 5-hour boil absorption.
    - d. Saturation coefficient.
    - e. Initial rate of absorption.
    - f. Efflorescence.
- E. Mock-Up: Provide a mock-up panel for each type of brick specified for evaluation of color, texture and workmanship to be used.
  - 1. Locate in areas designated by Architect.
  - 2. Do not begin installation of brickwork until the Architect approves the mock-up(s).
  - 3. Build as many mock-ups as required to obtain the Architect's acceptance. Remove unacceptable mock-ups from the site.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store materials to prevent damage due to moisture, contamination, breakage, chipping or other causes.
- C. Store materials on pallets or stable aggregate bed to reduce contamination and soiling. Cover with a non-staining waterproof membrane allowing for airflow around brick while protecting it from airborne contaminants and wind-borne dirt.

**1.7 ALLOWANCES**

- A. Allowances: Include allowance stated under provisions of Section 01 20 00 - Price and Payment Procedures Price and Payment Procedures. Allowance includes furnishing face brick, and hollow brick units. Material allowance and Installation is included in this Section and is part of Contract Sum/Price.

**1.8 PROJECT CONDITIONS**

**SECTION 04 21 00**

**CLAY MASONRY UNITS**

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- A. Follow hot weather and cold weather requirements in the masonry code and specifications, TMS 402 and TMS 602.
- B. Cold Weather Procedures:
  - 1. Preparation:
    - a. If ice or snow has formed on the masonry bed, remove it by carefully applying heat not to exceed 120 degrees F until the surface is dry to the touch.
    - b. Remove any brick units or mortar that is frozen or damaged.
    - c. When the clay masonry unit suction exceeds 30 grams per minute per 30 square inches, sprinkle with heated water as follows:
      - 1) When units are 32 degrees F or above, heat water to 70 degrees F or above.
      - 2) When units are below 32 degrees F, heat water to 130 degrees F or above.
  - 2. Work in Progress:
    - a. Air temperature 40 degrees F to 32 degrees F:
      - 1) Heat sand or mixing water to produce mortar temperatures that match air temperature.
    - b. Air temperature 32 degrees F to 25 degrees F:
      - 1) Heat sand and mixing water to produce mortar temperatures between 40 degrees F and 120 degrees F.
      - 2) Maintain temperature of mortar on boards above freezing.
      - 3) Installation in colder air temperatures will require heat sources on the wall and the use of windbreaks or tents to create a controlled environment suitable for proper bonding and curing.
  - 3. Completed Work and Work Not in Progress:
    - a. Mean daily air temperature of 40 degrees F to 32 degrees F: Protect masonry from rain and snow for 24 hours by covering with a weather-resistive membrane.
    - b. Mean daily air temperature of 32 degrees F to 25 degrees F: Cover masonry with a weather-resistive membrane for 24 hours.
    - c. Mean daily air temperature of 25 degrees F to 20 degrees F: Cover masonry with insulating blankets for 24 hours.
- C. Hot Weather Procedures:
  - 1. When ambient temperature exceeds 90 degrees F and wind exceeds 8 miles per hour:
    - a. Maintain temperature of mortar and grout between 70 degrees F and 120 degrees F.
    - b. Limit the spread of the mortar bed to 4 feet and place units within 1 minute of spreading mortar.
    - c. Control moisture evaporation in partially or newly completed walls by fog spraying with potable water, covering with opaque plastic or canvas or both.
  - 2. Protection of Work in Progress:
    - a. Covering:
      - 1) Cover tops of walls with a strong waterproof membrane at the end of

## SECTION 04 21 00

### CLAY MASONRY UNITS

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- each day or work shutdown. Extend the waterproof membrane cover a minimum of 24 inches down the side of each wall.
- 2) Hold cover securely in place.
- b. Load Application:
  - 1) Do not apply uniform floor or roof loading for at least 12 hours after completing columns and walls.
  - 2) Do not apply concentrated loads for at least 3 days after completing columns and walls.
- c. Staining:
  - 1) Prevent grout and mortar from staining the face of masonry.
  - 2) Remove grout and mortar that comes in contact with masonry units immediately.
  - 3) Protect sills, ledges and projections from mortar droppings.
  - 4) Protect base of wall from rain-splashed mud and mortar splatter.
  - 5) Turn scaffold boards on edge when work is not in progress to lessen splattering.

#### PART 2 PRODUCTS

##### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Boral Bricks, General Shale, Cherokee or equal.
- B. Substitutions: Any equal.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

##### 2.2 CLAY MASONRY UNITS

- A. Facing Brick: MATCH EXISTING
- B. Hollow Brick: TO BE SELECTED
- C. Provide brick similar in texture, color and physical properties to those available for inspection at the Architect's office and/or as supplied on the approved sample panel.
- D. Shapes: Special shapes are required to be used per architectural detail(s).
- E. All brick supplied shall be pre-blended by the manufacturer.

##### 2.3 REINFORCEMENT AND ANCHORAGE

- A. Steel Reinforcement:
  - 1. Billet Steel Deformed Bars: ASTM A 615.
  - 2. Rail Steel Deformed Bars: ASTM A 996.
  - 3. Axle Steel Deformed Bars: ASTM A 996.
  - 4. Epoxy Coated Steel Bars: ASTM A 775.

## SECTION 04 21 00

### CLAY MASONRY UNITS

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- B. Fabricated Steel Lintels: Requirements for loose steel lintels are specified in Section 05 50 00 - Metal Fabrications.
- C. Brick Anchors and Ties: Provide to sizes and types indicated on the Drawings.
  - 1. Corrugated Ties: ASTM A 1008, 20 gauge, galvanized in accordance with ASTM A 153, Class B-2.
  - 2. Joint Reinforcement: ASTM A 82, galvanized in accordance with ASTM A 153, Class B-2.
  - 3. Wire Wall Ties, ASTM A 82:
    - a. Galvanized in accordance with ASTM A 153, Class B-2.
  - 4. Dovetail Anchors, ASTM A 1008:
    - a. Galvanized in accordance with ASTM A 153, Class B-2.
    - b. Galvanized in accordance with ASTM A 153, Class B-2.

#### 2.4 ACCESSORIES

- A. Expansion Joints:
  - 1. Premolded Foam: ASTM D 1056, Type 2, Class A, Grade 1
  - 2. Neoprene: ASTM D 1056, Type 2, Class A, Grade 1.
  - 3. Sealant: Shall be in accordance with Section 07 90 00 - Joint Protection.
- B. Mortar: Mortar should be mixed by proportion according to ASTM C 270 for Type N mortar
  - 1. Portland Cement: ASTM C150, Type I.
  - 2. Hydrated Lime: ASTM C207, Type S.
  - 3. Sand: ASTM C144.
  - 4. Water: Potable.
- C. Flashing: Build in all flashings which enter the masonry as the work progresses Flashing are specified in Section 07 62 00 - Sheet Metal Flashing and Trim Sheet Metal Flashing and Trim and Section 07 65 26 - Self-Adhering Sheet Flashing Flexible Flashing..
- D. Weeps: Weeps are to be used in conjunction with flashing materials for proper functioning of the masonry wall drainage system. The specified weep material is:
  - 1. Cotton sash cord, 12 inches long with end laid in air cavity.
  - 2. Plastic tube, 1/4 inch minimum diameter.
  - 3. Plastic vents or cells.
  - 4. Aluminum vents or cells.

#### PART 3 EXECUTION

##### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify items provided by other Sections of work are properly sized and located.
- C. Verify that built in items are in proper location, and ready for roughing into masonry work.



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### CLAY MASONRY UNITS

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- D. If backup substrate and other preparation work is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

#### 3.2 PREPARATION

- A. Remove mud, loose rust, ice and contaminants that may interfere with mortar-to-unit bonding or mortar-to-footing/brick ledge bonding.
- B. Furnish temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent support.

#### 3.3 INSTALLATION

- A. Coursing:
  - 1. Establish lines, levels, and coursing indicated. Protect from displacement.
  - 2. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
  - 3. Lay brick units in bond indicated on the Drawings.
- B. Laying Clay Masonry Units:
  - 1. Lay brick making sure head joints and bed joints are full of mortar.
  - 2. Lay brick units plumb and true to line.
  - 3. Where fresh mortar joins partially set mortar, remove loose brick and mortar and lightly wet the exposed surface of set masonry.
  - 4. When adjustment must be made after mortar begins to harden, remove hardened mortar and replace it with fresh mortar.
  - 5. Remove excess mortar as Work progresses.
- C. Masonry Reinforcing: Install as indicated and as specified in Section 04 05 19.29 - Stone Anchors.
- D. Tooling and Pointing:
  - 1. Tool mortar joints to shape(s) indicated on the Drawings.
  - 2. Tool exposed joints when they are thumbprint hard.
  - 3. Flush-cut all joints when they are not tooled.
  - 4. When re-pointing a section in a wall, rake the mortar joints to a depth of not less than 1/2 inch. Fill the joint completely with pointing mortar and tool to match the surrounding masonry.
- E. Flashing:
  - 1. Build in all flashings that enter the masonry, as the work progresses. Install as indicated and as specified in Section 07 62 00 - Sheet Metal Flashing and Trim Sheet Metal Flashing and Trim and Section 07 65 26 - Self-Adhering Sheet Flashing Flexible Flashing.
  - 2. Remove any projections on the brick surface or mortar bed that might puncture the flashing material.
  - 3. Place through-wall flashing on a bed of mortar so that the flashing projects 1/4 inch

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4. from wall face and forms a drip edge. Overlap flashing a minimum of 6 inches.  
Cover flashing with mortar.

F. Weeps:

1. Install weeps in the head joints of the first brick course immediately above the through-wall flashing. Place weeps at not more than 24 inches on center horizontally.
2. Keep the air cavity free of mortar as much as possible. Expansion Joints:

G. Control And Expansion Joints:

1. Install control and expansion joints as indicated on Drawings.
2. Keep joints free of mortar and any debris that may hinder movement.
3. Install expansion joint material and finish the joint with a sealer.

3.4 CLEANING

- A. Cut out defective mortar joints and holes in exposed masonry and re-point with mortar.
- B. Clean a sample wall area. Do not proceed with cleaning without Architect's approval.
- C. Clean brick in accordance with BIA Technical Note Number 20 and the proprietary cleaning product manufacturer's recommendations.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged work before Substantial Completion.

END OF SECTION

SECTION 04 22 00

CONCRETE MASONRY UNITS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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1. SPECIAL NOTE:

A. EXPANSION AND CONTROL JOINTS TO BE PROVIDED IN ALL CMU. SEE BRICK INDUSTRY ASSOCIATION GUIDELINES FOLLOWING THIS SPECIFICATION. CONDUCT A JOBSITE MEETING TO REVIEW EXPANSION AND CONTROL JOINT LOCATIONS PRIOR TO INSTALLING CMU.

2. The work shall consist of furnishing, placing, and finishing concrete masonry units (CMU's) as required to build the structure. Units are smooth-face and split-face at the wainscot.

3. MATERIALS

Concrete blocks shall be load bearing concrete masonry units, Grade N, Type II units conforming to ASTM C90-81. Provide Oldcastle, Split-face 4" deep CMU (at Scorekeeping facility) and Oldcastle 8" deep stained split-face and smooth CMU. Allow for three colors (alternating courses). Colors to be selected from full color range (4101 through 4311).

CMU units are to be pre-stained and are to have a water repellent.

Allow for three colors.

Masonry units shall have been air-dried for not less than 28 days prior to being placed in the structure. Wetting of the block units shall not be permitted.

Mortar shall conform to the requirements of ASTM C270-89 or shall be proportioned based on laboratory or field experience to provide the required strength and workability.

Grout shall be mixed in the ratio, by volume, of one part Portland cement, up to 1/10 part lime, 2-1/4 parts minimum to 3 parts maximum damp loose sand and up to 2 parts coarse aggregate. The grout shall be of a fluid consistency suitable for placing without segregation.

Cement shall conform to ASTM C150-86 Type I, IA, II, or IIA.

Hydrated Lime shall conform to ASTM C150-86 Type II.

Aggregate shall be clean, hard and well graded, free of injurious amounts of dust, lumps, shale alkali, surface coatings, and organic matter.

Admixtures, such as fly ash or other flowability improving and water retention agents, may be used in the grout mix.

Water used in mixing and curing concrete shall be clean and free from injurious amounts of oil, salt, acid, alkali, organic matter or other deleterious substances.

4. WORKMANSHIP

## SECTION 04 22 00

### CONCRETE MASONRY UNITS

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All masonry shall be laid in running bond, true, level, plumb and neatly finished in accordance with the dimensions shown on the drawings.

There shall be no visible grout or mortar stain on the finished interior or exterior wall surfaces.

#### 5. INSPECTION

The Contracting Officer's Technical Representative shall have free entry to the proper facilities to inspect and sample the units at the place of manufacture from the lots ready for delivery. Sampling and testing of units shall be conducted in accordance with ASTM C140. Total linear drying shrinkage shall be based on tests of concrete masonry units made with the same materials, concrete mix design, manufacturing process, and curing methods, conducted in accordance with ATSM C426 and not more than 24 months prior to delivery.

#### 6. HANDLING OF CONCRETE MASONRY UNITS

Materials shall be stockpiled and batched by methods that will prevent cracking, chipping and breaking of the concrete masonry units. CMU's are to be stacked to a height of eight-block layers maximum. CMU's shall not be stored on the ground and shall be protected from mud, dirt, and other contaminants.

Five percent of a shipment containing chips not larger than 1 in. (25.4 mm) in any dimension, or cracks not wider than 0.02 in (0.5 mm) and not longer than 25% of the nominal height of the unit is permitted.

#### 7. MIXING OF MORTAR AND GROUT

After all ingredients are in the batch mixer, they shall be mechanically mixed for not less than three minutes. Hand mixing may be used when approved by the Engineer.

#### 8. MORTAR

The starting joint on foundations shall be laid with full mortar coverage on the bed joint, except that the area where grout occurs shall be kept free from significant accumulations of mortar so that the grout will contact the foundation.

Allow mortar joints to stiffen to "thumbprint hardness" before tooling. All tooling shall be done with a tool that compacts the mortar, pressing the excess mortar out of the joint rather than dragging it out. Remove mortar protrusions or droppings from the face of the masonry. Allow mortar to achieve an initial set prior to removal to avoid smearing mortar into masonry, but do not leave mortar droppings on masonry for an extended time.

Exterior and interior wall surfaces shall have joints tooled with a round or V-shaped bar to produce a dense, slightly concave surface well bonded to the block at the edges.

The horizontal and vertical mortar joints shall be 3/8" thick with full mortar coverage on the face shells and on the webs.

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Mortar may be retempered with water as required to maintain proper plasticity. Retempering on mortar boards shall be done only by adding water within a basin formed within the mortar and the mortar reworked into the water. Any mortar, which is unused after 1-1/2 hours from the initial mixing time, shall be discarded.

GROUT

The coarse aggregate used in grout shall comply with the following:

<u>Size of Smallest Space to be Grouted</u>	<u>Maximum Coarse Aggregate Size</u>
3/4-inch wide	none
3-inches wide	1/2 inch
4-inches wide	3/4 inch

Reinforcing steel shall be secured in place and inspected before grouting starts.

There shall be no bridging or honeycombing of the grout. Slump of the grout shall be no greater than 11 inches. The grout is to be placed in lifts not to exceed 5 feet.

Grout shall be placed within 1.5 hours after water is first added to the batch. Grout not used within the allotted time is to be discarded.

Significant accumulations of detrimental mortar droppings shall be removed from the grout space. No grout shall be placed until the NRCS Technical Representative has inspected the grout space, and approved it for grouting.

All grout shall be rodded or vibrated into place. Vertical cells to be filled shall have accurate alignment to maintain a continuous unobstructed cell area not less than 2" by 3".

Grout of beams over openings shall be done in one continuous operation.

Anchor bolts cast in walls shall be solidly grouted in place.

9. PREPARATION OF SUBGRADE

Prior to placement of concrete masonry units, subgrade shall be free of chips, sawdust, debris, water, extraneous oil, mortar, or other harmful substances. Earth surfaces shall be firm and damp. Placement of concrete masonry units on mud, dried earth or un-compacted fill will not be permitted.

Items to be embedded in or placed on the concrete shall be positioned accurately and anchored firmly. The top surface of the concrete foundation shall be clean, free of laitance and the aggregate shall be exposed, but not undercut, before the initial masonry course is placed.

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**10. PLACING**

Concrete masonry units shall not be placed until the subgrade, forms, steel reinforcement, and embedded items have been inspected and approved. The Contractor shall give reasonable notice to the Engineer each time he intends to place concrete masonry units. Such notice shall provide sufficient time for the Engineer to inspect the subgrade, steel reinforcement and other preparations for compliance with the specifications. Other preparations include but are not limited to the finishing, schedule of work, or workforce. Deficiencies are to be corrected before concrete masonry units are to be placed.

**11. CONSTRUCTION**

Excessive mortar smears and droppings shall be avoided.

Prevent rain from entering walls by covering the tops of walls at the end of each working day. Within a day or two of that a smear occurs, use a stiff fiber brush and water (with or without sand) to scrub mortar smears off the masonry surface.

All walls over 8 feet shall be braced. If conditions are or expected to be excessively windy, the contractor is responsible for adequate bracing, irrespective of wall height.

**12. FINISHING**

Cleaning of the CMU's shall only be by scrubbing or as suggested by the manufacturer. Scrubbing efforts shall be focused on the unit surfaces, not the mortar joints. Pressure water spraying and acid cleaning are not acceptable.

Masonry walls shall be protected from saturation or other factors that may cause efflorescence during construction and until they are weather proofed. If efflorescence occurs prior to weather proofing, it shall be removed.

Over cleaning of masonry shall always be avoided.

- (1) The item of work subsidiary to this bid items is:

Steel Reinforcement, Construction Specification 34

SECTION 05 52 13  
METAL PIPE RAILING

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITIONS

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SECTION 055213 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents:
  - 1. Drawings and general provisions of the Subcontract apply to this Section.
  - 2. Review these documents for coordination with additional requirements and information that apply to work under this Section.
- B. Section Includes:
  - 1. [Steel] [pipe handrails, balusters, and fittings].
  - 2.
- C. Products Supplied But Not Installed Under This Section:
  - 1. Division 03 Section "Cast-In-Place Concrete" (for placement of anchors in concrete).
  - 2. [Division 04 Section "Concrete Unit Masonry"] (for placement of anchors in masonry)
- D. Related Sections:
  - 1. Division 01 Section "General Requirements."
  - 2. Division 01 Section "Special Procedures."
  - 3. Division 05 Section "Metal Stairs" (for handrails other than specified in this section)
  - 4. Division 06 Section "Architectural Woodwork" (for wood handrail)
  - 5. Division 06 Section "Glazing" (for glass baluster infill)
  - 6. Division 06 Section "Painting" (for paint finish)

1.2 REFERENCES

- A. General:
  - 1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
  - 2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
  - 3. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.
- B. ASTM International:
  - 1. ASTM A 53 Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe
  - 2. ASTM A 386 Zinc-Coating (Hot-Dip) on Assembled Steel Products
  - 3. ASTM A 500 Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes
  - 4. ASTM A 501 Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
  - 5. ASTM B 211 Aluminum-Alloy Bars, Rods, and Wire
  - 6. ASTM B 221 Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
  - 7. ASTM B 241 Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube
  - 8. ASTM B 483 Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications
- C. Steel Structures Painting Council (SSPC)

1.3 SUBMITTALS

SECTION 05 52 13  
METAL PIPE RAILING

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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- A. Submit under provisions of Division 01 Section "General Requirements."
- B. Submit under provisions of Division 01 Section "General Requirements".
- C. Shop drawings shall indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
- D. Samples: Submit [two (2)] [ 24" ]-inch-long samples of handrail. Submit [two (2)] [ 12" ] samples, of [elbow] [Tee] [wall bracket] [escutcheon] [and] [end stop].

1.4 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated [[on drawings] [on shop drawings]]. [instructed by the manufacturer]

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. SC Railgin  
G&E Steel Fabricators  
or equal.
- B. Substitutions: Under provisions of Division 01 Section "General Requirements."

2.2 ALUMINUM RAILING SYSTEM

- A. Rails [and Posts]: [1-1/2] inch diameter, extruded tubing [conforming to ASTM [B 211] [B 221] [B 241] [B 483]].
- B. [Posts: [2 x 2-1/2] inch size, extruded tubing [conforming to ASTM [B 211] [B 221] [B 241] [B 483]].
- C. Fittings: Elbows, T-shapes, wall brackets, escutcheons; [cast] [machined] aluminum.
- D. Mounting: [Adjustable] brackets and flanges, [with] [steel] inserts for casting in concrete.] [with steel brackets for embedding into masonry.] [Prepare backing plate for mounting in [ ] wall construction.]
- E. Splice Connectors: [Concealed spigot]; [cast] aluminum.
- F. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
- G. Finish: [Coated] Color to be selected.

2.3 STEEL RAILING SYSTEM

- A. [Steel Tubing: [ASTM A 500, grade B] [ASTM A 501]]



SECTION 05 52 13  
METAL PIPE RAILING

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
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- B. [Rails]: [ 1 1-2" ]-inch [diameter] steel [pipe]; [welded] joints.]
- C. [Posts: [ 2 1-2" ]-inch[square steel tubing welded joints.]
- D. Fittings: Elbows, T-shapes, wall brackets, escutcheons; [cast] steel.
- E. Mounting: [Adjustable] brackets and flanges, [with steel inserts for casting in concrete. Prepare backing plate for mounting in [ masonry or steel stud ] wall construction.
- F. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
- G. Splice Connectors: Steel [concealed spigots.

#### 2.4 FABRICATION

- A. Fit and shop assemble components in largest practical sizes, for delivery to site.
- B. Fabricate components with joints tightly fitted and secured.
- C. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- E. Delete the following paragraph if noted on drawings.
- F. Continuously seal joined pieces by [intermittent welds and plastic filler.] [continuous welds.]
- G. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- H. Accurately form components [to suit stairs and landings], to each other and to building structure.

### PART 3 - EXECUTION

#### 3.1 INSPECTION

- A. Prior to the beginning of the installation, the Subcontractor shall assure the University that field conditions are suitable for the installation of handrails and railings.
- B. By beginning installation work, the Subcontractor warrants that existing conditions are suitable for installing handrails and railings.

#### 3.2 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.

SECTION 05 52 13  
METAL PIPE RAILING

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- B. Supply items required to be [cast into concrete] [and] [or] [embedded in masonry] [placed in partitions] with setting templates, to appropriate sections of this Specification.

3.3 INSTALLATION

- A. [Install in accordance with manufacturer's instructions.]
- B. Install components plumb and level, accurately fitted, free from distortion or defects.
- C. Provide anchors, [plates] [angles] [ or other ]as required for connecting railings to structure. Anchor railing to structure.
- D. [Field weld anchors as indicated on [shop drawings]. [Touch-up welds with primer. Grind welds smooth].]
- E. Conceal bolts and screws whenever possible. [Where not concealed, use flush countersunk fastenings.]

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END OF SECTION 055213

SECTION 06 10 00  
ROUGH CARPENTRY

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Framing with engineered wood products.
3. Shear wall panels.
4. Rooftop equipment bases and support curbs.
5. Wood blocking[, **cants**,] and nailers.
6. Wood furring[ **and grounds**].
7. Wood sleepers.
8. Plywood backing panels.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.

1.3 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. Wood-preservative-treated wood.
  2. Fire-retardant-treated wood.
  3. Engineered wood products.
  4. Shear panels.
  5. Power-driven fasteners.
  6. Post-installed anchors.
  7. Metal framing anchors

SECTION 06 10 00  
ROUGH CARPENTRY

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PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
1. Factory mark each piece of lumber with grade stamp of grading agency.
  2. For exposed lumber indicated to receive a stained or natural finish, [**mark grade stamp on end or back of each piece**].
  3. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: [**15 percent for 2-inch nominal (38-mm actual) thickness or less; 19 percent for more than 2-inch nominal (38-mm actual) thickness**] unless otherwise indicated.
- C. Engineered Wood Products: Acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
1. Allowable design stresses, as published by manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWWPA U1; Use Category UC2[ **for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground**].
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.[ **Do not use inorganic boron (SBX) for sill plates.**]
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

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ROUGH CARPENTRY

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D. Application: Treat [**all rough carpentry unless otherwise indicated.**]

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, [**furring,**] [**stripping,**] and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than **18 inches (460 mm)** above the ground in crawlspaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

### 2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply 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.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and 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. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
  2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent.[ **Kiln-dry plywood after treatment to maximum moisture content of 15 percent.**]
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. Application: Treat [**all rough carpentry unless otherwise indicated.**]
1. Framing for raised platforms.
  2. Framing for stages.

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ROUGH CARPENTRY

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3. Concealed blocking.
4. Framing for non-load-bearing partitions.
5. Framing for non-load-bearing exterior walls.
6. Roof construction.
7. Plywood backing panels.

## 2.4 DIMENSION LUMBER FRAMING

### A. Non-Load-Bearing Interior Partitions: [**Construction or No. 2**] grade.

1. Application: [**Interior partitions not indicated as load bearing**].
2. Species:
  - a. Southern pine or mixed southern pine; SPIB.
  - b. Northern species; NLGA.
  - c. Eastern softwoods; NeLMA.
  - d. Western woods; WCLIB or WWPA.

### B. Framing Other Than Non-Load-Bearing Partitions: [**Construction or No. 2**] grade.

1. Application: Framing other than [**interior partitions not indicated as load bearing**].
2. Species:
  - a. Hem-fir (north); NLGA.
  - b. Southern pine; SPIB.
  - c. Douglas fir-larch; WCLIB or WWPA.
  - d. Southern pine or mixed southern pine; SPIB.
  - e. Spruce-pine-fir; NLGA.
  - f. Douglas fir-south; WWPA.
  - g. Hem-fir; WCLIB or WWPA.
  - h. Douglas fir-larch (north); NLGA.
  - i. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

### C. Framing Other Than Non-Load-Bearing Partitions: Any species and grade with a modulus of elasticity of at least [**1,500,000 psi (10 350 MPa)**] OR [**1,300,000 psi (8970 MPa)**] OR [**1,100,000 psi (7590 MPa)**] thickness and **12-inch nominal (286-mm actual)** width for single-member use.

1. Application: Framing other than [**interior partitions not indicated as load-bearing**].

### D. Exposed Framing: Hand-select material for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.

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1. Species and Grade: As indicated above for load-bearing construction of same type.

## 2.5 ENGINEERED WOOD PRODUCTS

- A. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
  1. Extreme Fiber Stress in Bending, Edgewise: [**3100 psi (21.3 MPa)**]OR [**2900 psi (20.0 MPa)**] depth members.
  2. Modulus of Elasticity, Edgewise: [**2,000,000 psi (13 700 MPa)**] OR [**1,800,000 psi (12 400 MPa)**]
- B. Wood I-Joists: Prefabricated units, I-shaped in cross section, made with solid or structural composite lumber flanges and wood-based structural panel webs, let into and bonded to flanges. Comply with material requirements of and with structural capacities established and monitored according to ASTM D 5055.
  1. Web Material: [**Either OSB or plywood, complying with DOC PS 1 or DOC PS 2, Exposure 1**]
  2. Structural Properties: Depths and design values not less than those indicated.
  3. Comply with APA PRI-400. Factory mark I-joists with APA-EWS trademark indicating nominal joist depth, joist class, span ratings, mill identification, and compliance with APA-EWS standard.
- C. Rim Boards: Product designed to be used as a load-bearing member and to brace wood I-joists at bearing ends, complying with research or evaluation report for I-joists.
  1. Manufacturer: Provide products by same manufacturer as I-joists.
  2. Material: [**product made from any combination solid lumber, wood strands, and veneers**].
  3. Thickness: [**1 inch (25 mm)**].
  4. Comply with APA PRR-401, [**rim board**] grade. Factory mark rim boards with APA-EWS trademark indicating thickness, grade, and compliance with APA-EWS standard.

## 2.6 SHEAR WALL PANELS

- A. Wood-Framed Shear Wall Panels: Prefabricated assembly consisting of wood perimeter framing, tie downs, and Exposure I, Structural I plywood or OSB sheathing.
- B. Steel-Framed Shear Wall Panels: Prefabricated assembly consisting of cold-formed galvanized-steel panel, steel top and bottom plates, and wood studs.

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ROUGH CARPENTRY

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- C. Allowable design loads, as published by manufacturer, shall meet or exceed those of building codes and **[of products of manufacturers listed]**. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.7 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. Rooftop equipment bases and support curbs.
  4. Cants.
  5. Furring.
  6. Grounds.
- B. Dimension Lumber Items: **[Construction or No. 2]** grade lumber of any species.
- C. Concealed Boards: **[15]** percent maximum moisture content and **[any of ]**the following species and grades:
1. Mixed southern pine or southern pine; No. **[2]** grade; SPIB.
  2. Eastern softwoods; No. **[2]** Common grade; NeLMA.
  3. Northern species; No. **[2]** Common grade; NLGA.
  4. Western woods; **[Construction or No. 2 Common]** grade; WCLIB or WWPA.

2.8 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, **[Exterior, A-C]** in thickness indicated or, if not indicated, not less than **[3/4-inch (19-mm)]** nominal thickness.

2.9 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall 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 **of Type 304 stainless steel]**.



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ROUGH CARPENTRY

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- B. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- C. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on **ICC-ES AC01** as appropriate for the substrate.

#### 2.10 METAL FRAMING ANCHORS

- A. Allowable design loads, as published by manufacturer, shall meet or exceed those **[of products of manufacturers listed]**. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, **G60 (Z180)** coating designation.
  - 1. Use for interior locations unless otherwise indicated.
- C. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); **G185 (Z550)** coating designation; and not less than **0.036 inch (0.9 mm)** thick.
  - 1. Use for wood-preserved-treated lumber and where indicated.

#### 2.11 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; **1-inch (25-mm)** nominal thickness, compressible to **1/32 inch (0.8 mm)**; selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Sill-Sealer Gaskets: Closed-cell neoprene foam, **1/4 inch (6.4 mm)** thick, selected from manufacturer's standard widths to suit width of sill members indicated.
- C. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, **[butyl rubber]** compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than **0.025 inch (0.6 mm)**.
- D. Adhesives for Gluing **[Furring]** to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

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ROUGH CARPENTRY

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**JACKSON COUNTY SENIOR CENTER - RENOVATIONS AND ADDITION**

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PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate [**furring,** ]nailers, blocking, [**grounds,** ]and similar supports to comply with requirements for attaching other construction.
- D. Install shear wall panels to comply with manufacturer's written instructions.
- E. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Do not splice structural members between supports unless otherwise indicated.
- G. Comply with AWWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- H. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
  - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
  - 3. ICC-ES evaluation report for fastener.

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.

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ROUGH CARPENTRY

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- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes [**wet enough that moisture content exceeds that specified**], apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 06 10 53  
MISCELLANEOUS ROUGH CARPENTRY

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Rooftop equipment bases and support curbs.
3. Wood blocking[, **cants**,] and nailers.
4. Wood furring[ **and grounds**].
5. Wood sleepers.
6. Utility shelving.
7. Plywood backing panels.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

SECTION 06 10 53

MISCELLANEOUS ROUGH CARPENTRY

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, [**mark grade stamp on end or back of each piece**] [**or**] [**omit grade stamp and provide certificates of grade compliance issued by grading agency**].
3. Dress lumber, S4S, unless otherwise indicated.

- B. Maximum Moisture Content of Lumber: [**15 percent for 2-inch nominal (38-mm actual) thickness or less, 19 percent for more than 2-inch nominal (38-mm actual) thickness**] unless otherwise indicated.

## 2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2[ **for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground**].

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.[ **Do not use inorganic boron (SBX) for sill plates.**]

- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

- D. Application: Treat [**all miscellaneous carpentry unless otherwise indicated.**]

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, [**furring,**] [**stripping,**] and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than **18 inches (460 mm)** above the ground in crawlspaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

## 2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame

SECTION 06 10 53  
MISCELLANEOUS ROUGH CARPENTRY

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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**JACKSON COUNTY SENIOR CENTER - RENOVATIONS AND ADDITION**

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front not extending more than **10.5 feet (3.2 m)** beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
  2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
  3. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D 5664, and design value adjustment factors shall be calculated according to ASTM D 6841. **[ For enclosed roof framing, framing in attic spaces, and where high-temperature fire-retardant treatment is indicated, provide material with adjustment factors of not less than 0.85 modulus of elasticity and 0.75 for extreme fiber in bending for Project's climatological zone.]**
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. **[ Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.]**
- C. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- D. Application: Treat **[all miscellaneous carpentry unless otherwise indicated.]**
1. Framing for raised platforms.
  2. Concealed blocking.
  3. Roof framing and blocking.
  4. Wood cants, nailers, curbs, equipment support bases, blocking, and similar members in connection with roofing.
  5. Plywood backing panels.
- 2.4 DIMENSION LUMBER FRAMING
- A. Non-Load-Bearing Interior Partitions: **[ Construction or No. 2 ]** grade of any species.
- B. Other Framing: **[ Construction, Stud, or No. 3 ]** grade of **[the following]** species:
1. Hem-fir (north); NLGA.
  2. Southern pine; SPIB.
  3. Douglas fir-larch; WCLIB or WWPA.
  4. Southern pine or mixed southern pine; SPIB.
  5. Spruce-pine-fir; NLGA.

SECTION 06 10 53  
MISCELLANEOUS ROUGH CARPENTRY

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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6. Douglas fir-south; WWPA.
7. Hem-fir; WCLIB or WWPA.
8. Douglas fir-larch (north); NLGA.
9. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

## 2.5 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. Rooftop equipment bases and support curbs.
  4. Cants.
  5. Furring.
  6. Grounds.
  7. Utility shelving.
- B. Dimension Lumber Items: [**Construction or No. 2**] grade lumber of any species.
- C. Concealed Boards: [**15**] [**19**] percent maximum moisture content of [**any of the following**] species and grades:
  1. Mixed southern pine or southern pine, [**No. 2**] [**No. 3**] grade; SPIB.
  2. Eastern softwoods, [**No. 2**] [**No. 3**] Common grade; NELMA.
  3. Northern species, [**No. 2**] [**No. 3**] Common grade; NLGA.
  4. Western woods, [**Construction or No. 2 Common**] [**Standard or No. 3 Common**] grade; WCLIB or WWPA.

## 2.6 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, [**Exterior, A-C**] in thickness indicated or, if not indicated, not less than [**3/4-inch (19-mm)**] nominal thickness.

## 2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners [**of Type 304 stainless steel**].

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MISCELLANEOUS ROUGH CARPENTRY

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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- B. Screws for Fastening to Metal Framing: [**ASTM C 1002**], length as recommended by screw manufacturer for material being fastened.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

## 2.8 MISCELLANEOUS MATERIALS

- A. Adhesives for Gluing [**Furring**] [**and**] [**Sleepers**] to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
  - 1. [<Double click to insert sustainable design text for VOC content of adhesive.>](#) Retain "Flexible Flashing" Paragraph below if required as a separator between preservative-treated wood and metal decking.
- B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, [**butyl rubber**] compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than **0.025 inch (0.6 mm)**.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate[ **furring,**] nailers, blocking, [**grounds,**] and similar supports to comply with requirements for attaching other construction.
- C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.
- D. Do not splice structural members between supports unless otherwise indicated.
- E. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- F. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:



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MISCELLANEOUS ROUGH CARPENTRY

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1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for fastener.

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 061053

SECTION 06 17 53  
SHOP-FABRICATED WOOD TRUSSES

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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**JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION**

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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Heavy Timber Wood roof trusses – 8 x 8 nominal member sizes..
2. Heavy Timber Wood girder trusses.
3. Miscellaneous Framing.

1.2 ALLOWANCES

- A. Provide wood truss Galvanized steel or stainless steel Metal-Plate-Connected pre-formed heavy duty connections and Truss Bracing. Provide bolted-rod reinforcing as required. All metal to be primed and painted. Submit Shop Drawings.

1.3 ACTION SUBMITTALS

- A. Product Data: For metal-plate connectors, metal truss accessories, and fasteners.

- B. Shop Drawings: Show fabrication and installation details for trusses.

1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
2. Indicate sizes, stress grades, and species of lumber.
3. Indicate locations of permanent bracing required to prevent buckling of individual truss members due to design loads.
4. Indicate locations, sizes, and materials for permanent bracing required to prevent buckling of individual truss members due to design loads.
5. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
6. Show splice details and bearing details.

- C. Delegated-Design Submittal: For metal-plate-connected wood trusses indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

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SHOP-FABRICATED WOOD TRUSSES

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1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For metal-plate-connected wood trusses, signed by officer of truss-fabricating firm.
- B. Evaluation Reports: For the following, from ICC-ES:
  - 1. Metal-plate connectors.
  - 2. Metal truss accessories.

1.5 QUALITY ASSURANCE

- A. Wood Truss Shop Drawing submittal to contain all layouts, details, connections, etc. Drawings shall bear the stamp of a Georgia Registered Structural Engineer.
- B. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.
  - 1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
  - 2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
- C. Fabricator Qualifications: Shop that **[participates in a recognized quality-assurance program, complies with quality-control procedures in TPI 1, and involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction]**

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store trusses to comply with recommendations in SBCA BCSI, "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal-plate-connected wood trusses.

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- B. Structural Performance: Metal-plate-connected wood trusses shall be capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1.
- C. Comply with applicable requirements and recommendations of TPI 1, TPI DSB, and SBCA BCSI.
- D. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

## 2.2 DIMENSION LUMBER

- A. Lumber: DOC PS 20 and applicable rules of any rules-writing agency certified by the American Lumber Standard Committee (ALSC) Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Provide dry lumber with [15] [19] percent maximum moisture content at time of dressing.
- B. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in [Section 061000 "Rough Carpentry."]

## 2.3 METAL CONNECTOR PLATES

- A. General: Fabricate connector plates to comply with TPI 1.
- B. Hot-Dip Galvanized-Steel Sheet: ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 (Z180) coating designation; and not less than 0.036 inch (0.9 mm) thick.

## 2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  - 1. Provide fasteners for use with metal framing anchors that comply with written recommendations of metal framing manufacturer.
  - 2. Where trusses are exposed to weather, in ground contact, 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.

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SHOP-FABRICATED WOOD TRUSSES

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2.5 METAL FRAMING ANCHORS AND ACCESSORIES

- A. Allowable design loads, as published by manufacturer, shall comply with or exceed those [indicated or required by the current edition of the International Building Code] .Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation.

2.6 FABRICATION

- A. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly, with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.
  - 1. Fabricate wood trusses within manufacturing tolerances in TPI 1.
- B. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install wood trusses only after supporting construction is in place and is braced and secured.
- B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.
- C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.
- D. Install and brace trusses according to TPI recommendations and as indicated.
- E. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in metal framing anchors according to manufacturer's fastening schedules and written instructions.
- F. Securely connect each truss ply required for forming built-up girder trusses.

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SHOP-FABRICATED WOOD TRUSSES

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- G. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
  - 1. Install bracing to comply with [**Section 061000 "Rough Carpentry."**] [**Section 061053 "Miscellaneous Rough Carpentry."**]
  - 2. Install and fasten strongback bracing vertically against vertical web of parallel-chord floor trusses at centers indicated.
- H. Install wood trusses within installation tolerances in TPI 1.
- I. Do not alter trusses in field. Do not cut, drill, notch, or remove truss members.
- J. Replace wood trusses that are damaged or do not comply with requirements.

END OF SECTION 061753

SECTION 06 40 23  
INTERIOR ARCHITECTURAL WOODWORK

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior standing and running trim.
2. Interior frames and jambs.
3. Interior stairs and railings.
4. Wood furring, blocking, shims, and hanging strips for installing interior architectural woodwork items that are not concealed within other construction.
5. Shop priming of interior architectural woodwork.
6. Shop finishing of interior architectural woodwork.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at **[Project site]** .

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Anchors.
2. Adhesives.
3. Shop finishing materials.
4. Fire-Retardant Treatment: Include data and warranty information from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings:

1. Include the following:
  - a. Dimensioned plans, elevations, and sections.
  - b. Attachment details.
2. Show **[large-scale]** details.
3. Show locations and sizes of furring, blocking, and hanging strips, including blocking and reinforcement concealed by construction and specified in other Sections.

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INTERIOR ARCHITECTURAL WOODWORK

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4. Apply [**AWI Quality Certification** Program label to Shop Drawings.

C. Samples: For each exposed product and for each shop-applied color and finish specified.

#### 1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For [**architectural woodwork manufacturer**] [**and**] [**Installer**].

B. Product Certificates: For the following:

1. Composite wood and agrifiber products.
2. Adhesives.

C. Field quality-control reports.

#### 1.5 CLOSEOUT SUBMITTALS

A. Quality Standard Compliance Certificates: [**AWI Quality Certification Program**] certificates.

#### 1.6 QUALITY ASSURANCE

A. Manufacturer's Certification: Licensed participant in [**AWI's Quality Certification Program**].

1. Installer Qualifications: [**Manufacturer of products**] [**and**] [**Licensed participant in AWI's Quality Certification Program**] or [**Licensed participant in WI's Certified Compliance Program**].

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockups of **typical interior architectural woodwork as shown on Drawings** including paneling, wainscot, crown assembly and bases..
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.

#### 1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install interior architectural woodwork until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining



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temperature and relative humidity at levels designed for building occupants for the remainder of the construction period.

- B. Environmental Limitations: Do not deliver or install interior architectural woodwork until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between **60 and 90 deg F (16 and 32 deg C)** and relative humidity between **[25 and 55]** percent during the remainder of the construction period.

## PART 2 - PRODUCTS

### 2.1 ARCHITECTURAL WOODWORK, GENERAL

- A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
1. Provide **[labels] [and] [certificates]** from **[AWI]** certification program indicating that woodwork **[ and installation]** complies with requirements of grades specified.

### 2.2 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

- A. Architectural Woodwork Standards Grade: **[Premium]**.
- B. Hardwood Lumber:
1. Species: **[Red oak]** .
  2. Cut **[Quarter cut/quarter sawn]**.
  3. Wood Moisture Content: **[5 to 10]** percent.
  4. Provide split species on trim that faces areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.
  5. For trim items **[ other than base]** wider than available lumber, use veneered construction. Do not glue for width.
    - a. For veneered base, use hardwood lumber core, glued for width.
  6. For base wider than available lumber, glue for width. Do not use veneered construction.
  7. For rails thicker than available lumber, use veneered construction. Do not glue for thickness.

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INTERIOR ARCHITECTURAL WOODWORK

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2.3 INTERIOR FRAMES AND JAMBS FOR TRANSPARENT FINISH

- A. Architectural Woodwork Standards Grade: [**Premium**] .
- B. Wood Species and Cut:
  - 1. Species: [**Red oak**] .
  - 2. Cut:[**Quarter cut/quarter sawn**].
  - 3. Wood Moisture Content: [**5 to 10**] percent.
  - 4. Provide split species on frames and jambs that face areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.
- C. For frames or jambs wider than available lumber, use veneered construction. Do not glue for width.
  - 1. Do not use plain-sawn softwood lumber with exposed, flat surfaces more than **3 inches (76 mm)** wide.

2.4 INTERIOR WOOD STAIRS AND RAILINGS

- A. Architectural Woodwork Standards Grade: [**Premium**].
- B. **Stair Handrail to be Westfire Stair Parts**, 7600P Red Oak Handrail or equal. SKU 7600P-1
- C. Wood for Transparent Finish:
  - 1. Species and cut:
    - a. Moldings: [**Red oak, quarter sawn**].
  - 2. Wood Moisture Content: [**5 to 10**] percent.
- D. Handrail Brackets: [**Cast bronze**] with wall flange drilled [**and tapped for concealed hanger bolt**] and with support arm for screwing to underside of rail. Size to provide **1-1/2-inch (38-mm)** clearance between handrail and face of wall.
- E. Handrail/Bumper Rail Brackets: Pairs of extruded-aluminum channels: one for fastening to back of rail and one for fastening to face of wall, assembled in overlapping fashion and fastened together at top and bottom with self-tapping screws. Size to provide **1-1/2-inch (38-mm)** clearance between handrail and wall.

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2.5 HARDWOOD SHEET MATERIALS

- A. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of the Architectural Woodwork Standards for each type of interior architectural woodwork and quality grade specified unless otherwise indicated.

1. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.

2.6 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Nailers: [**hardwood lumber**], kiln-dried to less than 15 percent moisture content.

1. Preservative Treatment: Provide softwood lumber treated by pressure process, AWWPA U1; Use Category UC3b.

- a. Provide [**where indicated**] and/or [**where in contact with concrete or masonry**] .
- b. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- c. Preservative Chemicals: Acceptable to authorities having jurisdiction[ **and containing no arsenic or chromium**].
- d. Mark lumber with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee's (ALSC) Board of Review.

- B. Provide self-drilling screws for metal-framing supports, as recommended by metal-framing manufacturer.

- C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage.

1. Provide metal expansion sleeves or expansion bolts for post-installed anchors.
2. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

2.7 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

- B. Fabricate interior architectural woodwork to dimensions, profiles, and details indicated.

1. Ease edges to radius indicated for the following:

- a. Edges of Solid-Wood (Lumber) Members: **1/16 inch (1.5 mm)** unless otherwise indicated.

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- b. Edges of Rails and Similar Members More Than **3/4 Inch (19 mm)** Thick: **1/8 inch (3 mm)**.
  
- C. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site.
  - 1. Disassemble components only as necessary for shipment and installation.
  - 2. Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting.
  - 3. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled.
    - a. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting.
    - b. Verify that parts fit as intended, and check measurements of assemblies against field measurements indicated on approved Shop Drawings before disassembling for shipment.
  
- D. Stairs: Cut rough carriages to accurately fit treads and risers.
  - 1. Glue treads to risers, and glue and nail treads and risers to carriages.
  - 2. House **[wall] [and] [face]** stringers, and glue and wedge treads and risers.
  - 3. Fabricate stairs with treads and risers no more than **1/8 inch (3 mm)** from indicated position and no more than **1/16 inch (1.5 mm)** out of relative position for adjacent treads and risers.

## 2.8 SHOP PRIMING

- A. Preparations for Finishing: Comply with the Architectural Woodwork Standards for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing interior architectural woodwork, as applicable to each unit of work.
  
- B. Interior Architectural Woodwork for Opaque Finish: Shop prime with one coat of wood primer as specified in Section 099123 "Interior Painting."
  - 1. Backpriming: Apply one coat of primer, compatible with finish coats, to concealed surfaces of woodwork. [ **Apply two coats to surfaces installed in contact with concrete or masonry and to end-grain surfaces.** ]
  
- C. Interior Architectural Woodwork for Transparent Finish: Shop-seal concealed surfaces with required pretreatments and first coat of finish as specified in Section 099300 "Staining and Transparent Finishing."

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INTERIOR ARCHITECTURAL WOODWORK

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1. Backpriming: Apply one coat of sealer, compatible with finish coats, to concealed surfaces of woodwork. [ **Apply two coats to surfaces installed in contact with concrete or masonry and to end-grain surfaces.** ]

## 2.9 SHOP FINISHING

- A. Finish interior architectural woodwork [**with transparent finish**] at fabrication shop. Defer only final touchup, cleaning, and polishing until after installation.
- B. Preparation for Finishing: Comply with Architectural Woodwork Standards, Section 5 for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing interior architectural woodwork, as applicable to each unit of work.
  1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of interior architectural woodwork. Apply two coats to end-grain surfaces.
- C. Transparent Finish:
  1. Architectural Woodwork Standards Grade: [**Premium**]
  2. Retain one or more of 13 "Finish" subparagraphs below. Review the Architectural Woodwork Standards for general performance characteristics of finishing systems.
  3. Finish: System - 1, Lacquer, Nitrocellulose.
  4. Finish: System - 2, Lacquer, Pre Catalyzed.
  5. Finish: System - 3, Lacquer, Post Catalyzed.
  6. Finish: System - 4, Latex Acrylic, Water Based.
  7. Finish: System - 5, Varnish, Conversion.
  8. Finish: System - 6, Oil, Synthetic Penetrating.
  9. Finish: System - 7, Vinyl, Catalyzed.
  10. Finish: System - 8, Acrylic Cross Linking, Water Based.
  11. Finish: System - 9, UV Curable, Acrylated Epoxy, Polyester, or Urethane.
  12. Finish: System - 10, UV Curable, Water Based.
  13. Finish: System - 11, Polyurethane, Catalyzed.
  14. Finish: System - 12, Polyurethane, Water Based.
  15. Finish: System - 13, Polyester, Catalyzed.
  16. Wash Coat for Closed-Grain Woods: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
  17. Staining: [**Match Architect's sample**].
  18. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.
  19. Filled Finish for Open-Grain Woods: [ **After staining, apply wash-coat sealer and allow to dry.** ] Apply paste wood filler and wipe off excess. Tint filler to match stained wood.

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20. Sheen: [Satin, 31-45] gloss units measured on 60-degree gloss meter according to ASTM D 523.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition interior architectural woodwork to humidity conditions in installation areas for not less than 72 hours prior to beginning of installation.
- B. Before installing interior architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming of concealed surfaces.

3.2 INSTALLATION

- A. Grade: Install interior architectural woodwork to comply with same grade as item to be installed.
- B. Assemble interior architectural woodwork and complete fabrication at Project site to the extent that it was not completed during shop fabrication.
- C. Install interior architectural woodwork level, plumb, true in line, and without distortion.
  - 1. Shim as required with concealed shims.
  - 2. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).
- D. Scribe and cut interior architectural woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Preservative-Treated Wood: Where cut or drilled in field, treat cut ends and drilled holes according to AWWPA M4.
- F. Fire-Retardant-Treated Wood: Install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- G. Anchor interior architectural woodwork to anchors or blocking built in or directly attached to substrates.
  - 1. Secure with countersunk, concealed fasteners and blind nailing.

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2. Use fine finishing nails[ **or finishing screws**] for exposed fastening, countersunk and filled flush with interior architectural woodwork.
3. For shop-finished items, use filler matching finish of items being installed.

H. Standing and Running Trim:

1. Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible.
2. Do not use pieces less than [**60 inches (1500 mm)**] long, except where shorter single-length pieces are necessary.
3. Scarf running joints and stagger in adjacent and related members.
4. Fill gaps, if any, between top of base and wall with [**plastic wood filler; sand smooth; and finish same as wood base if finished**].
5. Install standing and running trim with no more variation from a straight line than **1/8 inch in 96 inches (3 mm in 2400 mm)**.

I. Stairs: Securely anchor carriages to supporting substrates.

1. Install stairs with treads and risers no more than **1/8 inch (3 mm)** from indicated position.
2. Secure with countersunk, concealed fasteners and blind nailing.
3. Use fine finishing nails[ **or finishing screws**] for exposed fastening, countersunk and filled flush with wood surface.

J. Railings:

1. Install rails with no more than **1/8 inch in 96-inch (3 mm in 2400-mm)** variation from a straight line.
2. Stair Rails: Glue and dowel or pin balusters to treads and railings, and railings to newel posts.
  - a. Secure with countersunk, concealed fasteners and blind nailing.
  - b. Use fine finishing nails[ **or finishing screws**] for exposed fastening, countersunk and filled flush with wood surface.
3. Wall Rails: Support rails on wall brackets securely fastened to wall framing.
  - a. Space rail brackets not more than 36" o.c.

END OF SECTION 064023

SECTION 07 13 16  
SHEET MEMBRANE WATERPROOFING

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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**PART 1 GENERAL**

1.01 SUMMARY – SHEET MEMBRANE WATERPROOFING TO BE APPLIED TO ALL EXTERIOR CONCRETE BLOCK SURFACES AND POURED CONCRETE BASEMENT WALLS..

A. Section Includes:

1. Coal tar elastomeric (CTEM) sheet membrane waterproofing system
2. Work shall include, but is not limited to:
  - a. Vertical below grade waterproofing
  - b. Horizontal waterproofing
  - c. Membrane Flashing
  - d. Substrate Preparation
  - e. Geotextile leveling layer
  - f. Protective layer(s)
  - g. Drainage layer
  - h. Insulation board

B. Related Sections:

1. Section 03 30 00 Cast-In-Place Concrete
2. Section 04 20 00 Unit Masonry
3. Section 07 21 00 Thermal Insulation
4. Section 31 23 00 Excavation and Fill

1.02 REFERENCES

A. Publications listed herein are part of this specification to extent referenced.

B. American Society for Testing and Materials:

1. ASTM C272 Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions



SECTION 07 13 16  
SHEET MEMBRANE WATERPROOFING

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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2. ASTM C518 Test method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
3. ASTM C578 Specification for Preformed, Cellular Polystyrene Thermal Insulation
4. ASTM D1621 Test for Compressive Properties of Rigid Cellular Plastics
5. ASTM D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
6. ASTM D4491 Test Methods for Water Permeability of Geotextiles by Permittivity
7. ASTM D4716 Test Method for Constant Head Hydraulic Transmissivity (In-Place Flow) of Geotextiles and Geotextile Related Products
8. ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
9. ASTM D5957 Guide for Flood Testing Horizontal Waterproofing Installations
10. ASTM E96 Tests for Water Vapor Transmission of Materials in Sheet Form

1.03 SYSTEM DESCRIPTION

A. Design Requirements:

1. Two-ply application of self-adhered waterproofing membrane sheets shall be bonded together with hot air welds or structural sealant.
2. System shall be designed to limit lateral movement of water in event of membrane damage without use of additional installed components.
3. Membranes shall be highly resistant to acids, bases, oils, greases, petroleum products, and organic growth such as molds and algae. They shall be UV stable, impervious to standing water, and not effected by contact with asphalt or coal tar. Membranes shall have successfully passed the German FLL test protocol for "Investigating resistance to root penetration at green-roof sites" (FLL, 2002). This test must have been conducted at an independent accredited testing laboratory or at an established institution of higher education.

1.04 SUBMITTALS

A. Product Data:

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1. Submit manufacturer's literature describing sheet membrane waterproofing products and components to be provided.
- B. Shop Drawings:
1. Submit shop drawings showing general layout, seaming, anchoring sizes and types, membrane thickness, and other similar detailed information necessary to fully describe application.
  2. Shop drawing submittal shall include:
    - a. Location of penetrations
    - b. Perimeter and penetration details
    - c. Sheet layout and size
    - d. Number of flashing rolls by width
  3. Show adjacent or related portions of Work in a complete manner.
  4. Coordinate shop drawings submittal with submittals of related portions of Work:
    - a. Refer to work specified in plumbing specification sections for other requirements and limitations applicable to installation, including, but not limited to drains.
- C. Samples:
1. Submit not less than 3 samples of membrane material, preformed three-dimensional shapes, insulation board, and drainage boards.
  2. Sample Size: 12" in length, 6" x 6", or full size as appropriate to material
- D. Quality Assurance Submittals:
1. Test Reports:
    - a. Submit test reports prepared by an independent testing laboratory indicating full compliance with specified requirements.
  2. Certificates:
    - a. Provide a letter of certification from membrane manufacturer that applicator utilized for application of sheet membrane waterproofing system is an approved applicator in good standing.

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- b. Submit listing of not less than 5 of applicator's most recent applications representing similar scope and complexity to Project requirements. List shall include information as follows:
    - 1) Project name and address
    - 2) Name of owner
    - 3) Name of contractor
    - 4) Name of architect
    - 5) Date of completion
  - c. Provide manufacturer's certification that products to be used comply with specified requirements and are suitable for intended application.
  - d. Prior to flood testing, provide certification from structural engineer that structure will withstand dead load of water.
3. Manufacturer's Instructions:
- a. Submit manufacturer's printed application procedures that shall be basis for accepting or rejecting actual application procedures.
  - b. Maintain one copy of manufacturer's instructions on-site.
4. Warranties:
- a. Submit specimen copy of manufacturer's warranty for Owner's review.
  - b. Submit specimen copy of Contractor's warranty for Owner's review.

1.05 QUALITY ASSURANCE

- A. Qualifications:
- 1. Provide products from a company specializing in manufacture of sheet membrane waterproofing system with not less than 10 years experience.
  - 2. Materials shall be products of a single manufacturer or items standard with manufacturer of sheet membrane waterproofing system.
    - b. Provide primers and other secondary materials that are produced or are specifically recommended by manufacturer of membrane waterproofing system to ensure compatibility.
  - 3. Applicator shall be an approved applicator authorized by manufacturer, trained in application techniques and procedures of membrane waterproofing components.

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- a. Application of waterproofing membrane, flashing, membrane expansion joints, membrane protection layers, and drainage layer shall be responsibility of a single applicator to ensure undivided responsibility.
  - b. Application of waterproofing membrane shall be performed by trained and authorized personnel.
- B. Pre-Application Conference:
1. Schedule a conference to be held on-site well in advance of ordering materials and beginning application of waterproofing, but in no case less than 30 days before application of waterproofing. Provide not less than 72 hours advance notification to attendees, Owner, and Architect.
  2. Conference attendees shall include Owner, Architect, Contractor, waterproofing applicator, a representative of waterproofing manufacturer, and representatives of other trades whose work may interface with or affect waterproofing application.
  3. Topics to be discussed at conference shall include:
    - a. A review of Contract Documents and accepted shop drawings shall be made. If conflicts exist between manufacturer's specifications and Contract Documents, these differences shall be defined and resolved. Consult waterproofing manufacturer's representative to assist in resolving issues.
    - b. Establish trade-related work schedules and appropriate trade sequencing, including timely installation of equipment and penetrations to avoid or limit traffic on membrane waterproofing.
    - c. Review areas to receive different waterproofing systems and transition between various systems to be used.
    - d. Construction schedules and work methods shall be reviewed to prevent damage to waterproofing, including provisions for installation of temporary traffic paths or walkways for protection of finished waterproofing system.
    - e. Weather conditions and working temperature criteria shall be reviewed.
    - f. Establish and review provisions for on-site monitoring after waterproofing application is complete to assure that finished waterproofing application is not damaged by other trades. Establish provisions for payment for repairs in event that damage does occur.

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4. Pre-construction conference and inspection shall serve to clarify Contract Documents, application requirements and what work shall be completed before application can begin.
  - a. If waterproofing applicator or representative of waterproofing manufacturer discovers problems during inspection of substrates, a second pre-application shall be held to verify that corrective measures have been taken.
5. Prepare and submit to parties in attendance, Architect, and Owner a written report of pre-installation conference. Report shall be submitted within 3 days following conference.

C. Manufacturer's Field Service:

1. Arrange with membrane manufacturer to have services of a competent field representative on-site to accept substrate surface before application of waterproofing materials and provide on-site technical assistance and application guidance for application of waterproofing system.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading:

1. Deliver prepackaged materials in manufacturer's original unopened packaging with labels intact. Packaging or containers shall fully identify brand, type, grade, class, and other qualifying information used to describe contents.

B. Storage and Protection:

1. Materials that are susceptible to retaining moisture or that may be damaged by moisture shall be stored in a dry location before application. Moisture-sensitive materials shall be stored in enclosed areas protected from moisture or elevated humidity.
2. Membrane rolls shall be stored lying down.
3. Stack materials on pallets or platforms that are raised off ground or substrate.
4. Cover materials in a manner to provide air circulation and to prevent damage to surfaces.
5. Sealants, adhesives, and mastics shall be stored at temperatures above 40°F.

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6. Flammable materials shall be stored in a cool dry area away from sparks and open flames. Follow precautions outlined on container or supplied by material manufacturer/supplier.
7. Materials determined by Owner, Architect, and/or manufacturer's field representative to be damaged shall be removed from Site and replaced at no cost to Owner.

1.07 PROJECT CONDITIONS

A. Environmental Requirements:

1. Waterproofing materials and components shall not be applied unless correct solvent, adhesive, heat welding, or application temperature can be maintained. If proper application temperatures cannot be maintained, application shall cease.
2. Do not apply waterproofing if precipitation of any kind is occurring or is imminent. Materials shall not be applied if liquid moisture, snow, or ice is present on substrate.

1.08 SEQUENCING

A. Apply waterproofing in a timely manner, including installation of protection layer(s), drainage panels, and insulation in conjunction with work of other trades. Coordinate with other trades to avoid traffic over completed membrane surfaces.

1. Coordinate with installation of drains as shown on Drawings, including flashing, and associated waterproofing work.
2. Water tests of completed sections of waterproofing membrane shall be successfully completed before proceeding with protection layers and overburden. Schedule water tests promptly to allow timely installation of protection layers.

1.09 SPECIAL WARRANTY

A. Manufacturer's Warranty:

1. Provide a manufacturer's labor and material warranty at successful completion of Project. Waterproofing membrane manufacturer shall warrant to repair leaks in waterproofing membrane resulting from defects in membrane or workmanship for a period of 20 years commencing from Date of Substantial Completion.

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- B. Contractor's Warranty:
1. Provide a workmanship warranty for not less than two-years commencing from Date of Substantial Completion. Work related to waterproofing membrane, flashing, or metal work found to be defective or not in compliance with contract documents shall removed and replaced at no cost to Owner. Obligation of warranty shall run directly to Owner with a copy to membrane manufacturer.
- C. Warranty shall not deprive Owner of other rights Owner may have under other provisions of Contract Documents and will be in addition to and run concurrent with other warranties made by Contractor under requirements of Contract Documents.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Provide Coal Tar Elastomeric (CTEM) membrane waterproofing with applicable components and accessories \.
- B. Concrete Preparation Materials:
1. Sika Concrete Restoration Systems, Lyndhurst, NJ; 201-933-8800
  2. Subject to compliance with requirements, equivalent products by other manufacturers listed below may be provided.
    - a. Conproco Coatings, Hookset, NH; 800-258-3500
    - b. Silpro Masonry Systems, Inc., Ayer, MA; 800-343-1501
    - c. W. R. Bonsai Company, Charlotte, NC; 800-334-0784

### 2.02 MEMBRANE MATERIALS

- A. Membrane Waterproofing - Base Ply:
1. Description: Self adhered, fully adhered Elvaloy modified coal tar elastomeric sheet

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- a. Bottom of sheet shall be coated with 15 mils of SBS-modified asphalt with a dry seldge edge for hot air welds
  2. Thickness: [60 mils membrane/15 mils adhesive/75 mils total] **OR** [75 mils membrane/15 mils adhesive/90 mils total]
  3. Properties:
    - a. Tensile Strength: ASTM D 638; 1000 psi minimum
    - b. Elongation at Break: ASTM D 638; 150% minimum
    - c. Seam Strength (minimum % of tensile strength): ASTM D 638; 95%
    - d. Retention of Properties after Heat Aging: ASTM D 3045
    - e. Tensile Strength (minimum % of original): ASTM D 638; 95%
    - f. Elongation (minimum % of original): ASTM D 638; 90%
    - g. Tear Resistance: ASTM D 1004; 250 lb/in minimum
    - h. Low Temperature bend (-40°F): ASTM D 2136; Pass
    - i. Linear Dimensional Change: ASTM D 1204; 9.0% maximum
    - j. Weight Change after Immersion in Water: ASTM D 570; 2.8% maximum
    - k. Water Vapor Permeance: ASTM E 96; 0.375 perms maximum
    - l. Puncture Resistance: Federal Method 2065; 44.0 pounds, minimum
  4. Product: Hyload - Hyproof SA OR EQUAL
- B. Membrane Waterproofing - Top Ply:**
1. Description: Self adhered Elvaloy modified coal tar elastomeric sheet with adhesive applied over 50% of bottom of sheet
    - a. Bottom of sheet shall be coated with SBS-modified asphalt with a dry seldge edge for hot air welds
  2. Thickness: [60 mils membrane/15 mils adhesive/75 mils total] **OR** [75 mils membrane/15 mils adhesive/90 mils total]
  3. Properties:
    - a. Tensile Strength: ASTM D 638; 1000 psi minimum
    - b. Elongation at Break: ASTM D 638; 150% minimum
    - c. Seam Strength (minimum % of tensile strength): ASTM D 638; 95%
    - d. Retention of Properties after Heat Aging: ASTM D 3045



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- e. Tensile Strength (minimum % of original): ASTM D 638; 95%
  - f. Elongation (minimum % of original): ASTM D 638; 90%
  - g. Tear Resistance: ASTM D 1004; 250 lb/in minimum
  - h. Low Temperature bend (-40°F): ASTM D 2136; Pass
  - i. Linear Dimensional Change: ASTM D 1204; 9.0% maximum
  - j. Weight Change after Immersion in Water: ASTM D 570; 2.8% maximum
  - k. Water Vapor Permeance: ASTM E 96; 0.375 perms maximum
  - l. Puncture Resistance: Federal Method 2065; 44.0 pounds, minimum
4. Product: Hyload - Hyproof SA-2 or equal

C. Membrane Flashing: Elvaloy modified coal tar. elastomeric sheet

1. Thickness: Not less than 60 mils
2. Sheet Width: 4", 6", 9", and/or 12" as needed

2.03 COMPONENTS

A. Preformed Three Dimensional Shapes:

1. Shapes: As needed to meet Project requirements including, but not limited to detail corners, level changes, stop ends, and other similar special applications
2. Product: Hyload - Cloaks or equal

B. Drainage Board: Three-dimensional, two-part prefabricated soil sheet drain

1. Thickness: 7/16" nominal
2. Core: Polystyrene
  - a. Flow Rate: Not less than 18 GPM per foot of width; ASTM D4716
  - b. Compressive Strength: 21,000 lbs/ft<sup>2</sup>; ASTM D1621
3. Fabric Face: Woven geotextile fabric
  - a. Fiber: Polypropylene
  - b. Permeability: 0.003 in/sec; ASTM D4491
  - c. Permittivity: 1.36 sec; ASTM D4491
  - d. Apparent Opening Size: U.S. Standard sieve 40
  - e. Puncture Strength: 105 lbs; ASTM D4833
4. Product: Hyload - Hydrain 650 or equal

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2.04 INSULATION MATERIALS

- A. Insulation Board: Extruded polystyrene; ASTM C578, Type VII
  - 1. Thermal Resistance: Refer to schedule below
  - 2. Thickness: As indicated on Drawings
  - 3. Properties:
    - a. Compressive Strength; ASTM D1621: 60 psi minimum
    - b. Water Absorption; ASTM C272: 0.1% by volume maximum
    - c. Water Vapor Permeance; ASTM E96: 1.0 perm for 1" maximum
  - 4. Products: Owens Corning - FoamulaR 604 or equal.

2.05 ACCESSORIES

- A. Protection Board: Asphaltic core protection board
  - 1. Core: Mineral filled high melt point asphalt
  - 2. Top and Bottom Surfaces: Inert non-woven glass reinforcing mat
  - 3. Thickness: 1/4"
  - 1. Product: Hyload - Hyglass
- B. Primer:
  - 1. Product: Hyload - Hyprime
- C. Sealant: Moisture cure, moisture insensitive, high performance polyether sealant
  - 1. Product: Hyload - Structural Sealant
- D. Adhesive: Moisture cure, moisture insensitive, high performance polyether adhesive
  - 1. Product: Hyload - Membrane Adhesive
- E. Mastic: Waterproofing mastic that can be applied in beads from a 28 oz caulking tube or trowel-applied from 2 or 5 gallon pails

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1. Product: Hyload - Trowel-On Membrane (TOM)
  
- F. Metal Termination Bars: Extruded aluminum pre-punched at 6" on center
  1. Size: 1" wide x 1/8" thick
  
- G. Concrete Preparation Materials:
  1. Bonding Bridge. Bonding Agent:
    - a. Product: Sika - Sikadur 32, Hi-Mod
  3. Polymer Modified Patching Mortar:
    - a. Horizontal Application Product: Sika - SikaTop 122
    - v. Vertical and Over Head Application Product: Sika - SikaTop 123
  4. Crack Filler:
    - a. Product: Sika - SikaTop 111

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Site Verification of Conditions:
  1. Examine areas and conditions under which installation of membrane waterproofing shall be performed.
    - a. Concrete substrate shall be cured not less than 7 days and be clean, dry, and frost free before application of waterproofing system.
    - b. Concrete block or brick substrates shall have smooth trowel-cut mortar joints or shall be treated with a parge coat.
    - c. Substrates shall be inspected and repaired as needed to provide a proper surface to receive waterproofing system.
    - d. Identify incompatible substrates, if any.
  2. Do not proceed until unsatisfactory conditions have been corrected.
  3. Commencement of installation constitutes acceptance of conditions and responsibility for satisfactory performance.

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3.02 PREPARATION

A. Protection:

1. Take care during application that overloading of structure does not occur.
2. Install temporary waterstops at end of each day's work and remove before proceeding with next day's work. Waterstops shall be compatible with materials and shall not emit dangerous or incompatible fumes.
3. Liquid materials such as solvents and adhesives shall be stored and used away from open flames, sparks and excessive heat.
4. Verify that drain lines are un-blocked before starting work.
5. Take necessary precautions when using volatile materials around air in-takes. Coordinate equipment to be turned off and on with Owner if necessary.

B. Surface Preparation:

1. Provide a smooth, clean substrate suitable for adhesion of waterproofing system. Remove substances that could inhibit bonding of membrane and waterproofing system. Substantially clean substrate to provide a smooth, even surface to greatest extent practical.
2. Remove concrete form release coatings and curing compounds. Contaminants such as dirt, debris, loose materials, moisture, or surface irregularities shall be removed.
3. Grind down projections greater than 1/8". Grind, round off, and smooth sharp corners and edges. Patch and fill voids and holes greater than 1/2" with patching mortar.
4. New concrete shall be sufficiently dry before application of membrane sheets. Perform plastic sheet test (ASTM D4263) successfully prior to application of membrane sheets.
5. If covering over a previously existing waterproofing system, substantially remove such that a solid, undisturbed substrate is achieved. Contact Hyload representative for specific applications.

C. Surface Priming(Hyproof SA only):

1. Apply Hyload Hyprime primer at minimum rate of 1 gallon per 100 square feet. Allow primer to dry completely.

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2. Application of primer shall be limited to what can be covered with membrane in a given workday. Primed areas not covered by membrane during workday shall be re-primed.
3. Re-prime areas contaminated with dirt or dust.
4. Mask adjacent areas to control application of primer. Remove spilled and misapplied primer.

D. Joint and Crack Treatment:

1. Cracks in concrete less than 1/16" wide shall be pre-treated with a 1/16" (60 mil) coating of liquid membrane 2" wide centered on crack.
2. Apply 6" flashing membrane centered over cracks wider than 1/16" set in 2 continuous 1/4" beads of Hyload Structural Sealant, one on each side of crack.

E. Detailing:

1. Apply 6" flashing membrane centered over vertical corners and horizontal to vertical transitions set in 2 continuous 1/4" beads of Hyload Structural Sealant, one on each side of corner.
2. Make flashing membrane strips continuous. Overlap end joints by a minimum of 3" and either hot air weld or set in continuous 1/4" bead of Hyload Structural Sealant inside lap.
3. Seal joints in substrates.
4. Provide a minimum of 3/4" Hyload Structural Sealant fillet at inside corners.
5. Provide flashings at changes of plane and around penetrations.
6. Apply a liberal bead of Hyload Structural Sealant at obstructions to continuous sheet waterproofing.

3.03 SHEET MEMBRANE APPLICATION

A. General Requirements:

1. Proceed with waterproofing application only after substrate preparation is complete. Obtain acceptance of concrete surface from membrane manufacturer's field representative before proceeding with membrane application.

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2. Apply and detail waterproofing system in compliance with manufacturer's instructions, recommendations, standard details, and project specific details. Use only proprietary membrane components and materials, as supplied by membrane manufacturer.
  3. Form terminations to match manufacturer's standard details including sealed termination bars.
  4. Continuously seal terminations including temporary terminations with Hyload Structural Sealant.
  5. Flash sheet waterproofing system into drains, if any. Make installation 100% waterproof.
  6. Ensure waterproofing system is concealed from view in completed work.
  7. Coordinate installation of counter flashings and covering construction.
  8. Apply only as much waterproofing membrane as can be made weathertight each day including flashing work.
  9. Do not permit water to penetrate under sheet waterproofing.
- B. Self-Adhered Base-Ply Membrane:
1. Exercise care to not trap air pockets under membrane during application.
  2. Roll entire membrane firmly and completely as soon as possible. For horizontal applications, roller shall be a minimum of 30" wide and 70 pounds. Roller shall be cushioned with a resilient material such as foam or carpet. For vertical applications, a hand-held roller with rubber or neoprene wheels shall be firmly used.
- C. Grid Lock Base-Ply Membrane:
1. Apply 1/2" beads of Hyload Membrane Adhesive in a 12" intersecting grid pattern.
  2. Lay Hyload sheets over adhesive grid and broom membrane into place over entire area. Exercise care to not flatten beads out paper-thin, maintain a 1/16" to 1/8" bead profile.
- D. Self-Adhered Top-Ply Membrane:
1. Apply Hyload sheets beginning at low point of roof or center of drain to base sheet following manufacturer's printed instructions.
  2. Exercise care to not trap air pockets under membrane during application.

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3. Roll entire membrane firmly and completely as soon as possible. For horizontal applications, roller shall be a minimum of 30" wide and 70 pounds. Roller shall be cushioned with a resilient material such as foam or carpet. For vertical applications, a hand-held roller with rubber or neoprene wheels shall be firmly used.
- E. For Horizontal or Low-Slope Applications:
1. For horizontal, or low-slope applications, apply Hyload sheets from low point to high point so that laps shed water. Perimeters and penetrations shall be picture framed with sheets that run parallel to perimeter or penetration opening.
  2. To greatest extent possible, form minimum 8" high bathtubs at horizontal applications.
- F. For Vertical Applications:
1. For vertical applications, apply Hyload sheets in lengths up to 8 feet. On higher walls install sheets in two or more lifts. Hyload sheets may also be installed horizontally in shingle fashion.
  2. Terminate membrane a minimum of 12" above grade level secured by a termination bar fastened every 6". Cover termination with a membrane counter-flashing.
  3. Where a vertical membrane meets a horizontal substrate extend vertical membrane onto horizontal by a minimum of 6".
  4. Terminate a vertical membrane at base of a wall only if bottom elevation of an interior floor slab is a minimum of 12" above footing. Terminate Hyload sheets on top of footing if vertical waterproofing ties into mud slab waterproofing or if bottom elevation of interior floor slab is less than 12" above footing. Extend membrane a minimum of 12" onto mud slab waterproofing and dress terminating edge with a bead of Hyload Structural Sealant.
  5. Seal or terminate upper lift by end of each day.
- G. Lapping and Joining Sheets:
1. Follow lap guidelines printed on sheet waterproofing.
  2. Adjacent sheets of membrane shall be securely and completely joined together by either hot air welding or by application of Hyload Structural Sealant.

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3. Side laps shall be a minimum of 3" end laps a minimum of 9". Stagger end laps by a minimum of 12". Exercise care to avoid stretching sheets as they are applied. If stretched, sheets will recover overnight to their original dimensions.
4. Hot air weld side laps. Dress end laps with a 1/2" bead of Hyload Structural Sealant. Dress T-joints with 1/2" beads of Hyload Structural Sealant.
5. In situations where hot air welding of side laps is restricted or otherwise impractical, a finished lap shall be achieved by placing a continuous 1/2" bead of Hyload Structural Sealant positioned 3/4" from edge under overlying membrane. Set lap by applying sufficient pressure over bead such that it just starts to bleed out from under overlying membrane.
6. Make minimum 4" laps at patches, repairs, and penetrations.

H. Membrane Flashing:

1. For Horizontal or Low-Slope Applications:
  - a. Flashing sheet shall lap over onto field membrane by a minimum of 6".
  - b. Flashing membrane shall extend vertically a minimum of 9" above finished wear surface or grade. Secure top of flashing sheet with a termination bar fastened every 6".
  - c. Junction of flashing to substrate, termination bar, and fasteners shall be covered and sealed with Hyload Waterproofing Mastic applied a minimum of 1/8" thick.
  - d. Cover termination with a membrane counter-flashing.
2. For Vertical Applications:
  - a. Terminate membrane a minimum of 12" above grade level secured by a termination bar fastened every 6". Junction of flashing to substrate, termination bar, and fasteners shall be covered and sealed with Hyload Waterproofing Mastic applied a minimum of 1/8" thick. Cover termination with a counter-flashing.
  - b. Where a vertical membrane meets a horizontal substrate, extend vertical membrane onto horizontal by a minimum of 6". Terminate a vertical membrane at base of a wall only if bottom elevation of an interior floor slab



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is a minimum of 12" above footing. Seal termination with Hyload Waterproofing Mastic applied a minimum of 1/8" thick.

- c. Terminate membrane on top of footing if vertical waterproofing ties into mud slab waterproofing or if bottom elevation of interior floor slab is less than 12" above footing. Extend membrane a minimum of 12" onto mud slab waterproofing and seal termination with Hyload Waterproofing Mastic applied a minimum of 1/8" thick.

I. Corners and Intersections:

1. At intersections of one horizontal and one vertical plane forming a 2-way inside corner, or two vertical planes forming a 2-way inside corner, treat inside corner by creating a minimum 3/4" fillet, or cant, using Hyload Waterproofing Mastic. Extend mastic onto both horizontal and vertical planes a minimum of 6" by 1/8" thick. Apply membrane snugly into corner over mastic.
2. At intersections of one horizontal and one vertical plane forming an outside corner, grind off sharp edges such that a minimum 1/8" beveled corner is created. Apply a full sheet of membrane snugly over treated corner during installation.
3. At intersections of one horizontal and two vertical planes forming a 3-way inside or outside corner, set appropriate pre-formed cloak into a 1/8" continuous bed of Hyload Waterproofing Mastic that extends a minimum of 6" in all directions out from corner. Extend vertical and horizontal field sheet of membrane onto cloak by a minimum of 3" in each direction.
4. Field membranes shall be secured to cloak by either hot air welding or by setting field membranes into a 1/8" bed of Hyload Structural Sealant that has been applied to cloak. Whether hot air welding to cloak or setting membranes in sealant onto cloak, edges of membrane on cloak shall be dressed with a 1/2" bead of Hyload Structural Sealant.

J. Penetrations:

1. Apply Hyload sheets to within 1" of base of penetration. Dress edge of Hyload sheet with a 1/2" bead of Hyload Structural Sealant.

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2. Apply a minimum 1/8" of Hyload TOM around penetration a minimum of 6" onto Hyload membrane and up penetration to just below height of completed overlay.

K. Protection Board:

1. Waterproofing membrane is not designed for permanent exposure. Protect membrane from abuse as soon as possible following membrane application.
2. Apply protection board promptly following application of membrane waterproofing. Boards shall be adhered to membrane using an adhesive acceptable to manufacturer of membrane products.
3. Adhesive shall be applied in compliance with manufacturer's instructions.
4. Boards shall be butted together with no gaps larger than 1/4".

3.04 DRAINAGE BOARDS

A. Vertical Application:

1. Apply drainage board promptly following application of membrane waterproofing and protection board in compliance with manufacturer's recommendations.
2. Starting at base of wall place base-drain horizontally oriented with open core side up and 2" flap of fabric side against wall. Install base-drain over protection board applied over waterproofing membrane, using methods approved by waterproofing material manufacturer.
  - a. Typical attachment methods include general construction adhesive or two-sided tape.
  - b. Fabric flap along top edge should be secured.
  - c. Use couplers and corner fittings as needed to form a continuous installation.
  - d. Install discharge outlet fittings to connect with discharge pipes.
3. Install drainage board with plastic core side toward wall where bottom core edge overlaps 2" fabric flap of base-drain and abuts base-drain plastic core. Apply drainage board over protection board applied over waterproofing membrane using a method approved by waterproofing material manufacturer.
  - a. Typical attachment methods include construction adhesive or two-sided tape.

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- b. Place extra fabric flap of drainage board over front of base-drain to cover open top edge and then secure extra fabric flap with general construction adhesive or duct tape.
  4. Install subsequent drainage boards to finished grade or as indicated on Drawings.
    - a. Connect adjacent panels at end by pulling filter fabric back to expose two rows of core dimples and interlocking core dimples with installed panel. With next course, flangeless panel edge shall be placed over top flange edge of panel below and butted dimple to dimple.
    - b. Connections shall be completed in shingle fashion so that water will flow with overlap and not against it.
    - c. Overlap extra fabric in direction of water flow and secure with construction adhesive or duct tape. Wrap panel termination edges with filter fabric flap by tucking fabric behind core.
  5. For inside and outside corners abut adjoining drainage composite at corner. Cover open core with extra filter fabric to prevent intrusion of soil into core.
  6. Around protrusions, cut drainage composite to fit and wrap extra filter fabric around open edge of core to prevent soil intrusion into core.
  7. Secure drainage boards to wall at grade with termination bar mechanically fastened 12" on center with fabric wrapped behind exposed core to prevent intrusion of soil into the core.
  8. Tears or punctures in fabric shall be covered with new filter fabric.
- B. Horizontal Application:
  1. Filter fabric shall face direction from which water will come..
  2. It is not necessary to anchor drainage panels in most applications; follow panel manufacturer's recommendations.
  3. Tuck filter fabric behind core to cover exposed edges. Tears or punctures in fabric shall be covered with new filter fabric.
  4. For drainage below cast-in-place concrete wearing surfaces, do not place concrete directly on filter fabric. Place a sacrificial layer of 3 to 4 ounce, non-woven filter fabric over filter fabric integral with drainage panels to prevent primary filter fabric from clogging.

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- 5 Rebar chairs shall be placed on metal or plastic plates to distribute load to prevent primary filter fabric from clogging.

3.05 INSULATION BOARDS

A. General Requirements:

1. Place insulation boards, unadhered, over membrane with drain channels down. End joints shall be staggered.
2. Boards shall be tightly butted together with no gaps greater 3/8".
3. Insulation shall be neatly fitted to within 3/4" of roof penetrations, projections, cant strips, etc.
4. When multi-layer insulation applications are involved bottom layer of insulation shall be thickest layer and shall be not less than 2" thick. Layers shall be installed unadhered to each other and joints in relation to underlying layers staggered.
5. No more insulation shall be installed than can be covered and completed before end of day's work, or before onset of inclement weather.

3.06 REPAIR/RESTORATION

- A. Inspect membrane before covering and make repairs immediately. Patch tears, punctures, seams, or other deficiencies with a membrane patch that extends a minimum of 6" in every direction beyond defect. Dress edges of patch with not less than 1/2" bead of Hyload Structural Sealant.

3.07 SITE QUALITY CONTROL

- A. Employ and pay for services of an independent commercial inspection agency to monitor waterproofing material installation for compliance with Contract Documents and manufacturer's published literature, perform professional consultation, inspections, tests, and other services specified.
1. Inspection service shall be acceptable to waterproofing manufacturer, Owner, and Architect and shall be qualified to conduct inspections indicated.

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- B. Inspections:
1. Inspection service shall perform continuous inspection of installation.
  2. Inspections shall include substrate examination, beginning of waterproofing installation, interim inspection, and final inspection prior to back-filling or pouring of concrete against waterproofing.
  3. Inspection service shall report inspection results in writing to Contractor, waterproofing installer, waterproofing material manufacturer, Owner, and Architect on same day that inspections are made. Reports indicating non-compliance shall be faxed immediately to parties on distribution list, Architect, Owner, and Contractor. Reports shall give observations and indicate compliance or non-compliance with Contract Documents. Each report shall include:
    - a. Date issued
    - b. Project title and number
    - c. Testing agency name, address, and telephone number
    - d. Name and signature of certifying agency personnel
    - e. Date and time of inspection
    - f. Record of temperature and weather conditions
    - g. Identification of product and Specification Section
    - h. Location of inspection in Project
    - i. Indication of satisfactory compliance with Contract Documents
    - j. Report unsatisfactory conditions or failure to comply with requirements of Contract Documents and shop drawings.
  4. Testing and inspection agency personnel are not authorized to:
    - a. Revoke, alter, enlarge on, or release requirements of Contract Documents
    - b. Approve or accept any portion of Work
    - c. Perform duties of Contractor
  5. Materials and workmanship not meeting specified standard of performance shall be removed and replaced at Contractor's expense, including subsequent tests and inspections.
- C. Flood Testing: ASTM D5957

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1. Prior to flood testing, ascertain from structural engineer that structure will withstand dead load of water.
  2. Flood testing of horizontal waterproofing shall be done prior to placement of protection board. Not less than 2" of water shall be placed over finished membrane for at least 24 hours.
  3. Mark leaks and make repairs when membrane is dry. Membrane shall be re-tested following corrections.
  4. Prepare a written report of flood testing, and submit to Architect within 7 days following test. Report results of tests, both successful and unsuccessful. In addition to results, report shall include date of test, project name, list of products being applied and tested, name of applicator, name of Contractor, and conditions causing failure of waterproofing in event of an unsuccessful test.
  5. Alternatively, employ EFVM (Electric Field Vector Mapping) leak detection method.
- D. Electric Field Vector Mapping:
1. Leak detection of horizontal waterproofing shall be done prior to placement of protection board utilizing electrical conduction method as provided by International Leak Detection, phone 866-282-5325.
  2. Provide testing to verify membrane is free of holes, open seams and capillary defects that will allow water to pass.
  3. For areas to receive EFVM testing provide following:
    - a. Thoroughly wet waterproofing membrane in area of test. Wetting can be accomplished by hand or mechanical spray devices. Membrane shall be wet during testing procedures. Pounded water shall not be necessary.
    - b. Place conductor wire on wetted, bare membrane. Secure wire with small strips of waterproofing or other compatible membrane or tape. Overburden, insulation, drainage composites and filter fabric shall not be installed prior to initial test.
    - c. Allow testing technician to locate membrane breaches, if any. Technician shall mark on waterproofing membrane or surface exact location of defect and assign an identification number to each location.

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- d. Visually inspect entire membrane area and repair breaches found. An EFVM retest shall be performed to confirm integrity of repair(s).
  4. Technician shall prepare a report of each day's test results containing a written description and photograph of defect(s) located and a schematic CAD drawing indicating location of conductor wire and of defect(s) located in testing field to within 1" of accuracy. This report shall be made available in hard copy.
  5. Submit written report of EFVM tests to Architect within 7 days following testing. Report results of tests, both successful and unsuccessful. In addition to results, report shall include date of test, project name, list of products being applied and tested, name of applicator, name of Contractor, and conditions causing failure of waterproofing in event of an unsuccessful test.
- E. Manufacturer's Field Service:
1. Manufacturer's field representative shall inspect waterproofing installation periodically during installation to verify that installation is in compliance with manufacturer's current guidelines and recommendations.
  2. Manufacturer's field representative shall check and test heat-welded seams before water test, and prior to installation of separation and protection layers.

**3.08 CLEANING**

- A. Waterproofing materials, components and accessories shall be removed from Site and taken to a legal dumping area authorized to receive such materials.

**3.09 PROTECTION**

- A. Protect horizontal and vertical membranes after installation and testing with a protection course or drainage mat. Install protection course or drainage mat within 24 hours after completion of testing.
1. Eliminate construction traffic on newly tested membrane systems. Do not store construction materials on unprotected membrane surfaces.
  2. Trafficking or storing materials on tested membrane can introduce additional damage to waterproofing system and will nullify testing procedures.

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3. Membrane areas that are observed to be trafficked or used as a storage/working platform shall be retested and immediately repaired and covered with insulation and drainage composite.

3.10 SCHEDULE

- A. Thermal Resistance Properties: ASTM C518 test method at 75°F

1. Rigid Insulation Board:

Thickness (nominal)	Thermal Resistance (nominal R-value)
1 1/2"	R 7.5
2"	R 10
2 1/2"	R 12.5
3"	R 15
3 1/2"	R 17.5
4"	R 20

END OF SECTION



SECTION 07 21 00  
BUILDING INSULATION

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

1. R-21 Wall Insulation with Vapor Barrier (all exterior walls).
2. R-40 blown insulation above all new gypsum board attached to underside of trusses.
3. Sound Attenuation Insulation and Fire Rated Sound Attenuation Blankets. ALL INTERIOR WALLS TO HAVE SOUND ATTENUATION BATTS/BLANKETS/BOARDS. See 2.2, B.

- B. Related Sections: The following sections contain requirements that relate to this section:

1. "Gypsum Drywall"

1.3 DEFINITIONS

- A. Thermal Resistivity: Where the thermal resistivity of insulation products are designated by "r-values," they represent the reciprocal of thermal conductivity (k-values). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivities are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of insulation product specified.
- C. Samples for verification purposes in full-size units of each type of exposed insulation indicated for each color specified.
- D. Product test reports from and based on tests performed by qualified independent testing laboratory evidencing compliance of insulation products with requirements including r-values (aged values for plastic foam insulations), fire performance characteristics, perm ratings, water absorption ratings, and other properties, based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

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- A. Fire Performance Characteristics: Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per the ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.
1. Surface Burning Characteristic: ASTM E 84
  2. Fire Resistance Ratings: ASTM E 119
  3. Combustion Characteristics: ASTM E 136

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's recommendations for handling, storage, and protection during installation.
- B. Protect plastic insulation as follows:
1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
  2. Protect against ignition at all times. Do not deliver plastic insulating materials to project site ahead of installation time.
  3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide insulation products of one of the following:
1. Batt Insulation (batt insulation in walls to provide moisture control – CertainTeed Smartbatt or equal:
    - a. CertainTeed Corp.
    - b. Owens Corning
    - c. Knauf Insulation
    - d. OR EQUAL

**2.2 INSULATING MATERIALS**

- A. R-21 Foil-faced batt insulation in all exterior walls
- B. Knauf, or equal “EocBatt Insulation with Eocse Technology” in all interior walls.
- C. R-40 Batt Insulation. R- 19 in walls.

**PART 3 - EXECUTION**

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**3.1 EXAMINATION**

- A. Examine substrates and conditions with Installer present, for compliance with requirements of the Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Clean substrates of substances harmful to insulations or vapor retarders, including removal of projections that might puncture vapor retarders.

**3.3 INSTALLATION, GENERAL**

- A. Comply with insulation manufacturer's instructions applicable to products and application indicated. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.
- B. Extend insulation full thickness as indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections that interfere with placement.
- C. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

**3.4 INSTALLATION OF GENERAL BUILDING INSULATION**

- A. Apply insulation units to substrate by method indicated, complying with manufacturer's recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Set vapor retarder faced units with vapor retarder to warm side of construction, except as otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.
  - 1. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

**3.5 PROTECTION**

- A. General: Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

**END OF SECTION**

SECTION 07 41 13  
METAL ROOF PANELS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
JACKSON COUNTY ELECTIONS OFFICE RENOVATIONS AND SITE WORK  
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SECTION 07 41 13- STANDING-SEAM METAL ROOF PANELS

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 standing-seam metal roof panels. METAL ROOFING TO MATCH PROFILE AND FINISH OF EXISTING ROOF PANELS.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at **[Project site]**
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
  - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
  - 4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
  - 5. Review structural loading limitations of **[deck]** **[purlins and rafters]** during and after roofing.
  - 6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.
  - 7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
  - 8. Review temporary protection requirements for metal panel systems during and after installation.
  - 9. Review procedures for repair of metal panels damaged after installation.
  - 10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

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1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Sustainable Design Submittals:

1. Product Test Reports: For roof materials, documentation indicating that roof materials comply with Solar Reflectance Index requirements.
2. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

C. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than **3 inches per 12 inches (1:5)**.

D. Calculations:

1. Include calculations with registered engineer seal, verifying roof panel and attachment method resist wind pressures imposed on it pursuant to applicable building codes.

E. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

F. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal Panels: **12 inches (305 mm)** long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Manufacturer and Installer.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

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- C. Field quality-control reports.
- D. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

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

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in architectural sheet metal products.
- B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  - 1. Build mockup of typical roof area and eave[, **including fascia,**] [**and soffit**] as shown on Drawings; approximately **48 inches (1200 mm)** square by full thickness, including attachments[, **underlayment,**] and accessories.
  - 2. Build mockups for typical roof area only, including accessories.
    - a. Size: **48 inches (1200 mm)** by **48 inches (1200 mm)**.
    - b. [**Each type of exposed seam and seam termination**
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of

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water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

- D. Retain strippable protective covering on metal panels until installation. Remove as panels are being installed. Verify film is not left on installed panels.

#### 1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

#### 1.10 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.
- B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

#### 1.11 WARRANTY

- A. Special Galvalume Substrate Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including rupturing, or perforating.
    - b. Deterioration of metals and other materials beyond normal weathering.
  - 2. Warranty Period: 20 years and 6 months from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, chipping, peeling, or failure of paint to adhere to bare metal.

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2. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. Special Watertightness Warranty: Manufacturer's **[standard form]** **[no dollar limit form]** in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain watertight, including leaks, within specified warranty period.
  1. Warranty Period: **[Two]** **[Five]** **[10]** **[15]** **[20]** years from date of Substantial Completion.
  2. Shop drawings must be provided to, reviewed, and approved by panel manufacturer prior to panel system installation.
  3. Inspections by panel system manufacturer technical representative are required. Perform first inspection when underlayment and flashing are in place and second inspection when the roof is complete.
- D. Special Installer Warranty: Furnish a written warranty signed by the Panel Applicator guaranteeing materials and workmanship for watertightness of the roofing system, flashings, penetrations, and against all leaks.
  1. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 29 percent.
- B. Solar Reflectance Index (SRI): Three-year-aged SRI not less than **[64]** **[32]** or initial SRI not less than **[82]** **[39]** when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.
- C. Energy Performance: Provide roof panels that are listed on the EPA/DOE's ENERGY STAR "Roof Product List" for **[low]** **[steep]**-slope roof products.
- D. Energy Performance: Provide roof panels according to one of the following when tested according to CRRC-1:
  1. Three-year, aged solar reflectance of not less than **[0.55]** **<Insert value>** and emissivity of not less than **[0.75]** **<Insert value>**.
  2. Three-year, aged Solar Reflectance Index of not less than **[64]** **<Insert value>** when calculated according to ASTM E 1980.



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- E. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to [ASTM E 1592] [UL 580]:
1. Wind Loads: As indicated on Drawings.
  2. Other Design Loads: [As REQUIRED BY CODE.>.
  3. Deflection Limits: For wind loads, no greater than [1/240] of the span.
  4. .
- F. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E 1680 and ASTM E 283 at the following test-pressure difference:
1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).
- G. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 and ASTM E 331 at the following test-pressure difference:
1. Test-Pressure Difference: 15 lbf/sq. ft. (718.2 Pa).
- H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
1. Uplift Rating: UL 90.
- I. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): [120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces]

## 2.2 STANDING-SEAM METAL ROOF PANELS

- A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.
1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.
  2. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1637.

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- B. Vertical-Rib, Snap-Joint, Standing-Seam Metal Roof Panels : Formed with vertical ribs at panel edges and **a flat pan** between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Berridge Manufacturing Company; Cee-lock or comparable product by one of the following:
    - a. AEP Span; A BlueScope Steel Company.
    - b. ATAS International, Inc.
    - c. Berridge Roofing
    - d. CENTRIA Architectural Systems.
    - e. Fabral.
    - f. Garland Company, Inc. (The).
    - g. IMETCO.
    - h. MBCI; a division of NCI Group, Inc.
    - i. McElroy Metal, Inc.
    - j. Merchant & Evans Inc.
    - k. Metal Sales Manufacturing Corporation.
    - l. VICWEST.
    - m. **<Insert manufacturer's name>**.
  2. Metallic-Coated Steel Sheet: Aluminum-zinc alloy-coated steel sheet complying with ASTM A 792/A 792M, **Class AZ50 (Class AZM150)** coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
    - a. Nominal Thickness: **[0.029 inch (0.74 mm)]**.
    - b. Exterior Finish: **[Two-coat fluoropolymer]**
    - c. Painted materials shall have a removable plastic film to protect the paint during roll forming, shipping and handling.
    - d. Color: **[As indicated by manufacturer's designations] [Match Architect's samples] [As selected by Architect from manufacturer's full range] <Insert color>**.
  3. Aluminum Sheet: Coil-coated sheet, **ASTM B 209 (ASTM B 209M)**, alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.
    - a. Thickness: **0.032 inch (0.81 mm)**.
    - b. Surface: Smooth, flat finish.
    - c. Exterior Finish: **[Two-coat fluoropolymer] [Mica fluoropolymer] [Metallic fluoropolymer]**.

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- d. Painted materials shall have a removable plastic film to protect the paint during roll forming, shipping and handling.
  - e. Color: [As indicated by manufacturer's designations] [Match Architect's samples] [As selected by Architect from manufacturer's full range] <Insert color>.
4. Clips: [Continuous Cee-Rib with Vinyl Weatherseal Insert] to accommodate thermal movement.
    - a. Material: [0.029 inch (0.74 mm)] nominal thickness, aluminum-zinc alloy-coated steel sheet.
    - b. Material: 0.025-inch (0.64-mm) thick, stainless-steel sheet.
  5. Panel Coverage: [11.5 inches (292 mm)].
  6. Panel Height: 1.5 inches (38 mm).

### 2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 40 mils (1.02 mm) thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.
  1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D 1970.
  2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.
  3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Mid-States Asphalt Quick Stick HT Pro
    - b. Polyglass Polystick MTS
    - c. Soprema Lastobond Shield HT
    - d. Tamko TW Underlayment or TW Metal & Tile Underlayment
    - e. <Insert manufacturer's name>.
- B. Felt Underlayment: ASTM D 226/D 22M, Type II (No. 30), asphalt-saturated organic felts.

### 2.4 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C 645; cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 (Z275 hot-dip galvanized) coating designation or ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation unless otherwise

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indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
  2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Gutters: Formed from same material as roof panels, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum **96-inch (2400-mm)** long sections, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced a maximum of **36 inches (914 mm)** o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match [**metal roof panels**] [**roof fascia and rake trim**].
- E. Downspouts: Formed from same material as roof panels. Fabricate in **10-foot (3-m)** long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Finish downspouts to match gutters.
- F. Roof Curbs: Fabricated from same material as roof panels, [**0.029 inch (0.74mm)**] nominal thickness; galvalume or stainless steel; supply an integral full-length cricket for curbs wider than **24 inches (610 mm)** supported by a structural metal deck. Fabricate curb flashing [**0.029 inch (0.74mm)**]. On open framing, provide roof underlayment and decking at and about roof curb per roofing manufacturer's requirements. Maintain a minimum of 1/2 of roofing panel width on each side of roof curb, and start panels a minimum of **9 inches (229 mm)** up slope of roof curb, flashing roofing panels to roof curb per roofing manufacturer's requirements.. Fabricate curb and subframing to withstand indicated loads of size and height of roof top equipment. Where required insulate roof curbs with rigid insulation.
- G. Panel Fasteners: Zinc-coated steel, corrosion resisting steel, zinc cast head, or nylon capped steel, type and size as approved for the applicable loading requirements.
- H. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

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1. Joint Sealant: Silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.

## 2.5 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using factory set, non-adjustable, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.
- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
  1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
  2. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
  3. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
    - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

## 2.6 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

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- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Steel Panels and Accessories:
1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat applied by panel manufacturer on a continuous coil coating line, with a top side dry film thickness of  $0.75 \pm 0.05$  mil (0.0013 mm) over  $0.2 \pm 0.05$  mil (0.0013 mm) primer coat, to provide a total dry film thickness of  $0.95 \pm 0.10$  mil (0.024 mm). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
- D. Aluminum Panels and Accessories:
1. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat applied by panel manufacturer on a continuous coil coating line, with a top side dry film thickness of  $0.75 \pm 0.05$  mil (0.0013 mm) over  $0.2 \pm 0.05$  mil (0.0013 mm) primer coat, to provide a total dry film thickness of  $0.95 \pm 0.10$  mil (0.024 mm). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  2. Mica Fluoropolymer: AAMA 2605. Two-coat fluoropolymer finish with suspended mica flakes containing not less than 70 percent PVDF resin by weight in color coat applied by panel manufacturer on a continuous coil coating line, with a top side dry film thickness of  $0.75 \pm 0.05$  mil (0.0013 mm) over  $0.2 \pm 0.05$  mil (0.0013 mm) primer coat, to provide a total dry film thickness of  $0.95 \pm 0.10$  mil (0.024 mm). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  3. Metallic Fluoropolymer: AAMA 2605. Two-coat fluoropolymer finish with suspended metallic flakes containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat applied by panel manufacturer on a continuous coil coating line, with a top side dry film thickness of  $0.75 \pm 0.05$  mil (0.0013 mm) over  $0.2 \pm 0.05$  mil (0.0013 mm) primer coat, to provide a total dry film thickness of  $0.95 \pm 0.10$  mil (0.024 mm). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
  - 1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
  - 2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.
    - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.3 UNDERLAYMENT INSTALLATION

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply ICE AND WATER SHIELD at ALL ROOF locations. Provide wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 36 inches (914.4 mm). [Extend underlayment into gutter trough.] Roll laps with roller. Cover underlayment within 14 days or as directed by the underlayment product manufacturer.
  - 1. Apply over the entire roof surface.

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- B. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

### 3.4 METAL PANEL INSTALLATION

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
  - 1. Shim or otherwise plumb substrates receiving metal panels to be level to **1/4 inch in 20 ft. (6 mm in 6.1 m)**.
  - 2. Flash and seal metal panels at perimeter of all openings. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
  - 3. Locate and space fastenings in uniform vertical and horizontal alignment.
  - 4. Install flashing and trim as metal panel work proceeds.
  - 5. Panels should be continuous without end laps.
  - 6. Align bottoms of metal panels and fasten.
  - 7. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
  - 1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
  - 2. Aluminum Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use stainless-steel fasteners for surfaces exposed to the interior.
- C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.
  - 1. Install clips to supports with self-tapping fasteners.
  - 2. Install pressure plates, if required, at locations indicated in manufacturer's written installation instructions.
  - 3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied vinyl weatherseal.



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- F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.
- G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
  2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.
- H. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than **36 inches (914 mm)** o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- I. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely **1 inch (25 mm)** away from walls; locate fasteners at top and bottom and at approximately **60 inches (1524 mm)** o.c. in between.
1. Provide elbows at base of downspouts to direct water away from building.
  2. Connect downspouts to underground drainage system indicated.
- J. Roof Curbs: Install flashing around bases where they meet metal roof panels.
- K. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

### 3.5 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal panel units within installed tolerance of **1/4 inch in 20 feet (6 mm in 6 m)** on slope and location lines as indicated and within **1/8-inch (3-mm)** offset of adjoining faces and of alignment of matching profiles.

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3.6 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.
- B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare test and inspection reports.

3.7 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

**END OF SECTION**

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SECTION 07720 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

- 1. Roof curbs.
- 2. Equipment supports.
- 3. Relief vents.
- 4. Ridge vents.
- 5. Roof walkways.
- 6. Heat-and-smoke vents.
- 7. Snow guards.

- B. Related Sections include the following:

- 1. Division 5 Section "Metal Fabrications" for ladders and miscellaneous metal framing and supports.
- 2. Division 6 Section "Rough Carpentry" for roof sheathing, wood cants, and wood nailers.
- 3. Division 6 Section "Wood Decking" for wooden roof decks.
- 4. Division 7 Section "Sheet Metal Flashing and Trim" for shop- and field-fabricated metal flashing and counterflashing, scuppers, gutters and downspouts, fasciae, roof expansion-joint covers, valleys, and miscellaneous sheet metal trim and accessories.
- 5. Division 7 Section "Manufactured Roof Specialties" for fasciae, copings, gravel stops, and roof expansion-joint covers.
- 6. Division 7 Section "Roof Expansion Assemblies" for roof expansion-joint covers.
- 7. Division 7 Section "Plastic Unit Skylights" for small individual skylights.
- 8. Division 7 Sections for roofing accessories included as part of roofing Work.
- 9. Division 9 Section "Painting" for shop primers and field painting.
- 10. Division 15 Section "Power Ventilators" for power roof-mounted ventilators.

1.3 SUBMITTALS

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- A. Product Data: For each type of product indicated. Include construction details, materials, dimensions of individual components and profiles, and finishes.
  - B. Shop Drawings: Show fabrication and installation details. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other Work.
  - C. Coordination Drawings: Roof plans drawn to scale and coordinating penetrations and roof-mounted items. Show the following:
    - 1. Size and location of roof accessories specified in this Section.
    - 2. Method of attaching roof accessories to roof or building structure.
    - 3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.
  - D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for roof accessories with factory-applied color finishes.
  - E. Samples for Verification: For each type of exposed finish required, prepared on Samples in manufacturer's standard sizes, and of same thickness and material indicated for the Work. If finishes involve normal color or shade variations, include sample sets showing the full range of variations expected.

1.4 QUALITY ASSURANCE

- A. Standards: Comply with the following:
  - 1. SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.
  - 2. NRCA's "Roofing and Waterproofing Manual" details for installing units.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Roof Curbs and Equipment Supports:
    - a. AES Industries, Inc.
    - b. Colony Custom Curbs.

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- c. Commodity Products Company, Inc.
  - d. Conn-Fab Sales, Inc.
  - e. Curbs Plus, Inc.
  - f. Custom Curb, Inc.
  - g. Gieske Custom Metal Fabricators.
  - h. Goeller Enterprises.
  - i. LMCurbs.
  - j. Loren Cook Company.
  - k. Metallic Products Corporation.
  - l. Pate Co.(The).
  - m. Roof Products & Systems Corp.
  - n. ThyCurb, Inc.
  - o. Uni-Curb, Inc.
  - p. Vent Products Co., Inc.
2. Relief Vents:
- a. Aura Ventilation, Inc.
  - b. Bristolite Skylights.
  - c. Commodity Products Company, Inc.
  - d. Dowco Products Group.
  - e. Dur-Red Products, Inc.
  - f. Goeller Enterprises.
  - g. Metallic Products Corporation.
  - h. Solar Group (The).
  - i. ThyCurb, Inc.
  - j. Trimco, Inc.
  - k. Vent Products Co., Inc.
  - l. Western Canwell.
3. Ridge Vents:
- a. Air Vent, Inc.
  - b. Alcoa Building Products.
  - c. Commodity Products Company, Inc.
  - d. Cor-A-Vent, Inc.
  - e. GAF Materials Corporation.
  - f. Klauer Manufacturing Co.
  - g. Metallic Products Corporation.
  - h. Mid-America Building Products Corporation.
  - i. Niff-Corr, Inc.
  - j. Obdyke: Benjamin Obdyke, Inc.
  - k. Petersen Aluminum Corp.
  - l. Plyco Corporation.
  - m. Solar Group (The).

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- n. ThyCurb, Inc.
  - o. Trimco, Inc.
  - p. Trimline Roof Ventilation Systems.
  - q. Western Canwell.
  - r. Nystrom Products Co.
  - s. O'Keeffe's Inc.
  - t. Precision Stair Corporation.
  - u. Roof Products & Systems Corp.
  - v. ThyCurb, Inc.
  - w. Trimco, Inc.
  - x. Wasco Products, Inc.
4. Roof Walkways:
- a. GS Metals Corp.
  - b. Unistrut Corporation.
5. Hatch-Type Heat-and-Smoke Roof Vents:
- a. Babcock-Davis Hatchways, Inc.
  - b. Bilco Company.
  - c. Bristolite Skylights.
  - d. Custom Curb, Inc.
  - e. Dur-Red Products, Inc.
  - f. Goeller Enterprises.
  - g. Hi Pro International, Inc.
  - h. Milcor, Inc.
  - i. Naturalite Skylight Systems.
  - j. Nystrom Products Co.
  - k. O'Keeffe's Inc.
  - l. ThyCurb, Inc.
  - m. Wasco Products, Inc.
6. Drop-out, Dome-Type Heat-and-Smoke Vents:
- a. C/S Groups.
  - b. Custom Curb, Inc.
  - c. Dur-Red Products, Inc.
  - d. Goeller Enterprises.
  - e. Hi Pro International, Inc.
  - f. Milcor, Inc.
  - g. Naturalite Skylight Systems.
  - h. O'Keeffe's Inc.
  - i. Pate Co. (The).
  - j. Plasteco, Inc.

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k. Wasco Products, Inc.

2.2 MATERIALS, GENERAL

- A. Aluminum Sheet: **ASTM B 209 (ASTM B 209M)** for alclad alloy 3005H25 or alloy and temper required to suit forming operations, with mill finish, unless otherwise indicated.
- B. Extruded Aluminum: **ASTM B 221 (ASTM B 221M)** alloy 6063-T52 or alloy and temper required to suit structural and finish requirements, with mill finish, unless otherwise indicated.
- C. Galvanized Steel Sheet: ASTM A 653/A 653M with **G90 (Z275)** coating designation; commercial quality, unless otherwise indicated.
  - 1. Structural Quality: **Grade 40 (Grade 275)**, where indicated or as required for strength.
- D. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M with Class **AZ-50 (AZ-150)** coating, structural quality, **Grade 40 (Grade 275)**, or as required for strength.
- E. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by manufacturer. Match finish of exposed fasteners with finish of material being fastened.
- F. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.
- G. Bituminous Coating: SSPC-Paint 12, solvent-type bituminous mastic, nominally free of sulfur and containing no asbestos fibers, compounded for **15-mil (0.4-mm)** dry film thickness per coating.
- H. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.
- I. Elastomeric Sealant: Generic type recommended by unit manufacturer that is compatible with joint surfaces; ASTM C 920, Type S, Grade NS, Class 25, and Uses NT, G, A, and, as applicable to joint substrates indicated, O.
- J. Roofing Cement: ASTM D 4586, nonasbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.

2.3 ROOF CURBS

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- A. General: Provide roof curbs capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported on roof curbs. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
  - B. Fabrication: Unless otherwise indicated or required for strength, fabricate units from minimum **0.0747-inch- (1.9-mm-)** thick, structural-quality, hot-dip galvanized or aluminum-zinc alloy-coated steel sheet; factory primed and prepared for painting with welded or sealed mechanical corner joints.
    - 1. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
    - 2. Provide manufacturer's standard rigid or semirigid insulation where indicated.
    - 3. Provide formed cants and base profile coordinated with roof insulation thickness.
    - 4. Fabricate units to minimum height of **8 inches (200 mm)**, unless otherwise indicated.
    - 5. Sloping Roofs: Where slope of roof deck exceeds **1/4 inch per foot (1:48)**, fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units.

#### 2.4 EQUIPMENT SUPPORTS

- A. General: Provide equipment supports capable of supporting superimposed live and dead loads, including equipment loads and other construction to be supported. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
- B. Fabrication: Unless otherwise indicated or required for strength, fabricate units from minimum **0.0747-inch- (1.9-mm-)** thick, structural-quality, hot-dip galvanized or aluminum-zinc alloy-coated steel sheet; factory primed and prepared for painting with welded or sealed mechanical corner joints.
  - 1. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
  - 2. Fabricate units to minimum height of **8 inches (200 mm)**, unless otherwise indicated.
  - 3. Sloping Roofs: Where slope of roof deck exceeds **1/4 inch per foot (1:48)**, fabricate support units with height tapered to match slope to level tops of units.

#### 2.5 RELIEF VENTS

- A. Low-Profile Gravity Ventilators: Provide units of sizes, style, and profile indicated; fabricated from the following materials and including the following features:
  - 1. Material: Galvanized steel sheet.
  - 2. Material: Aluminum sheet.
    - a. Finish: Prime painted.
    - b. Finish: Baked enamel.



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- c. Finish: High-performance organic coating.
  - d. Finish: Clear anodic.
  - e. Finish: Color anodic.
3. Bird Screens: **1/2-inch- (13-mm-)** square mesh with **0.062-inch- (1.6-mm-)** diameter, stainless-steel wire.
  4. Insect Screens: **14-by-18 (1.5-by-1.1-mm)** mesh with **0.0123-inch- (0.3-mm-)** diameter, anodized aluminum wire in removable, rewirable frames.
  5. Manual Dampers: Designed for operation from floor directly below ventilator unit.
  6. Roof Curb Construction: Provide curb-mount units designed for installing **1-1/2-inch- (38-mm-)** thick wood curbs.
  7. Roof Curb Construction: Provide self-flashing units with integral self-supporting double-wall aluminum curb, enclosing minimum **1-inch- (25-mm-)** thick, glass-fiber board insulation (or equivalent), and with minimum **3-inch (75-mm)** roof flanges.

## 2.6 RIDGE VENTS

- A. General: Ventilating ridge cap with ventilating mesh providing a minimum net free area of **18 sq. in./ft. (380 sq. cm/m)**, of manufacturer's standard design.
  1. Aluminum: Fabricate from sheet aluminum with baffles to prevent snow and rain entering and with weep holes to allow water to drain to roof. Provide required splice plates and end caps.
    - a. Finish: Clear anodic.
    - b. Finish: Color anodic.
    - c. Finish: Baked enamel.
    - d. Finish: High-performance organic coating.

## 2.7 ROOF WALKWAYS

- A. Metal-Grating Type: Formed-metal plank gratings consisting of C-shaped channels rolled from heavy sheet metal of thickness indicated, and punched in serrated diamond shape to produce raised slip-resistant surface and drainage holes. Provide support framing, brackets, connectors, nosings, and other accessories and components needed for complete installation. Include step units for changes in elevation.
  1. Material: **0.07-inch (1.8-mm)**, structural-quality, galvanized steel sheet.
  2. For Flat Roofs: Provide resilient, hard rubber pads under each support unit to isolate supports from and protect roof membrane.

## 2.8 FINISHES, GENERAL

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- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.9 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Conversion-Coated and Factory-Primed Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below).
  - 1. Organic Coating: Air-dried primer of not less than 2.0-mil (0.5-mm) dry film thickness.
- C. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 607.1.
- D. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 606.1 or AAMA 608.1.
  - 1. Color: As selected by Architect from the full range of industry colors and color densities.
- E. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Apply baked enamel complying with paint manufacturer's specifications for cleaning, conversion coating, and painting.
  - 1. Color: As selected by Architect from manufacturer's full range.
- F. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

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1. Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight.
  2. Fluoropolymer Three-Coat System: Manufacturer's standard three-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight.
    - a. Color and Gloss: As selected by Architect from manufacturer's full range.

## 2.10 GALVANIZED STEEL SHEET FINISHES

- A. Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
  1. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
  2. Shop Primer: Exterior galvanized metal primer per Division 9 Section "Painting."
- B. High-Performance Organic Finish: Cleaned and primed with inhibitive primer and organic coating as specified below. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  1. Fluoropolymer Three-Coat System: Manufacturer's standard three-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 621 for coil-coated sheets.
    - a. Color and Gloss: As selected by Architect from manufacturer's full range.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Comply with manufacturer's written instructions. Coordinate installation of roof accessories with installation of roof deck, roof insulation, flashing, roofing membranes, penetrations, equipment, and other construction involving roof accessories to ensure that each element of the Work performs properly and that combined elements are waterproof and weathertight. Anchor roof accessories securely to supporting structural substrates so they are capable of withstanding lateral and thermal stresses, and inward and outward loading pressures.

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- B. Install roof accessory items according to construction details of NRCA's "Roofing and Waterproofing Manual," unless otherwise indicated,
- C. Separation: Separate metal from incompatible metal or corrosive substrates, including wood, by coating concealed surfaces, at locations of contact, with bituminous coating or providing other permanent separation.
- D. Flange Seals: Unless otherwise indicated, set flanges of accessory units in a thick bed of roofing cement to form a seal.
- E. Cap Flashing: Where required as component of accessory, install cap flashing to provide waterproof overlap with roofing or roof flashing (as counterflashing). Seal overlap with thick bead of mastic sealant.
- F. Operational Units: Test-operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.
- G. Heat-and-Smoke Vents: Locate, install, and test according to NFPA 204M.
- H. Ridge Vents: Install according to manufacturer's written instructions.

3.2 CLEANING AND PROTECTION

- A. Clean exposed surfaces according to manufacturer's written instructions. Touch up damaged metal coatings.

END OF SECTION 07720

SECTION 07 72 01  
GUTTERS AND DOWNSPOUTS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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**JACKSON COUNTY SENIOR CENTER - RENOVATIONS AND ADDITION**

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Roof accessories of the following types:
  - 1. Gutters and downspouts.
  - 2. Gutters protection.

1.2 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry.

1.3 REFERENCES

1.4 SUBMITTALS

- A. Submit Shop Drawings.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
- B. Installer Qualifications: Minimum 2 year experience installing similar products.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship is approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.
- D. Provide 20-year no leak warranty and 20-year material warranty.

1.6 PRE-INSTALLATION MEETINGS

- A. Convene minimum two weeks prior to starting work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

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GUTTERS AND DOWNSPOUTS

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- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handling: Handle materials to avoid damage.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Custom
- B. Substitutions: equals accepted..
- C. Requests for substitutions will be considered.

2.2 GUTTERS AND DOWNSPOUTS

- A. Gutter: Custom formed ogee steel gutters 22 gauge galvanized and painted with Kynar finish. Provide 6" box gutter.
- B. Mitered Corners:
  - Miter Inside & Outside Corners.
- C. Downspouts & Elbows:
  - 1. Material Thickness: .22 gauge steel.
  - 2. Finish: Dark Bronze Kynar Painted
  - 3. Profile: 4" round galvanized painted aluminum downspouts.
- D. Finish: Dark Bronze
- E. Accessories: Exposed finish to match gutters and downspouts. Material: .019 inch (0.48 mm) aluminum.
  - 1. End Caps: As required.
  - 2. Brick Ledge Jumper: As required.
  - 3. Pipe Clips: As required.
  - 4. Ferrule: As required.
  - 5. Spike: As required.
  - 6. Diamond Pipe Band : As required.
  - 7. Wrap Around Hangers: As required.

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GUTTERS AND DOWNSPOUTS

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2.3 GUTTER PROTECTION

A. Gutter Protection:

1. Product: TruGuard Gutter Protection as manufactured by Quality Edge.
  - a. Forward Nose - Maximum amount of surface tension, 14-3/16 inches (360 mm) handling more water.
  - b. Tri-Sectioned Rib Debris Separator - Allows debris to fall off at three different points.
  - c. Patented Smart Clip Bracket using Bridge Technology - Strengthens existing gutters and gives consistent surface tension.
  - d. Sustainable Material - Recycled aluminum alloy. 0.024 inch (0.61 mm) thick.
  - e. UV Paint System - Offers the best UV protection using a Kynar paint finish resisting fading and chalking ensuring consistent surface tension.
  - f. Brackets and accessories as required for a complete functioning system.
  - g. Panel: TruGuard Gutter Protection Panels.
  - h. Panel: High-Capacity Ported Panels.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install roofing accessories per manufacturer's instructions and requirements to provide performance as designed and maintain warranties offered.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 08 11 13  
STANDARD STEEL DOORS AND FRAMES

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

08 11 13-1

**JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION**

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**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following products manufactured in accordance with SDI Recommended Standards:
1. Doors: Seamless, hollow or composite construction standard steel doors for interior and exterior locations.
  2. Frames: Pressed steel frames for doors, transoms, sidelights, mullions, interior glazed panels, and other interior and exterior openings of following type:
    - a. Welded unit type
  3. Assemblies: Provide standard steel door and frame assemblies as required for the following:
    - a. Labeled and fire rated.
  4. Provide factory primed doors and frames to be field painted.
  5. Refer to drawings for specialty doors at vaults, detention, etc.
- B. Painting and special coating of primed doors and frames is specified in Division 9.
- C. Wood doors are specified in another Division 8 Section.
- D. Door hardware is specified in another Division 8 Section.
- E. Glass and Glazing ARE TO BE TEMPERED IN ALL DOORS.
- F. Building in of anchors and grouting of frames in masonry construction is specified in Division 4.

**1.3 SUBMITTALS**

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.
- C. Shop drawings showing fabrication and installation of standard steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
1. Provide schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.
  2. Indicate coordinate of glazing frames and stops with glass and glazing requirements.
- D. Label Construction Certification: For door assemblies required to be fire-rated and exceeding limitations of labeled assemblies, submit manufacturer's certification that each door and frame assembly has been constructed to conform to design, materials and construction equivalent to requirements for labeled construction.

**1.4 QUALITY ASSURANCE**

- A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard Steel Doors and Frames" ANSI/SDI-100 and as herein specified.



SECTION 08 11 13  
STANDARD STEEL DOORS AND FRAMES

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- B. Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies whose fire resistance characteristics have been determined per ASTM E 152 and which are labeled and listed by UL, Factory Mutual, Warnock Hersey, or other testing and inspecting organization acceptable to authorities having jurisdiction.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage.
- B. Inspect doors and frames upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inches high wood blocking. Avoid use of non-vented plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4-inches space between stacked doors to promote air circulation.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS**

- A. Manufacturer: Subject to compliance with requirements, provide standard steel doors and frames by one of the following:

1. Standard Steel Doors and Frames:
  - a. Amweld Building Products, Inc.
  - b. Ceco Corp
  - c. Copco Door Co.
  - d. Curries Company
  - e. Deansteel Manufacturing Co.
  - f. Fenestra Corp
  - g. Kewanee Corp
  - h. Mesker Door Co.
  - i. Pioneer Industries
  - j. Premier Products, Inc. (Formerly Dittco)
  - k. Republic Builders Products
  - l. Steelcraft Manufacturing Co.
  - m. Willco Hollow Metal

**2.2 MATERIALS**

- A. Hot-Rolled Steel Sheets and Strips: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM

SECTION 08 11 13  
STANDARD STEEL DOORS AND FRAMES

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A 568.

- C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, or drawing quality, ASTM A 642, hot dipped galvanized in accordance with ASTM A 525, with A60 or G60 coating designation, mill phosphatized.
- D. Supports and Anchors: Fabricate of not less than 18-gage sheet steel; galvanized where used in galvanized frames.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize in compliance with ASTM A 153, Class C or D as applicable.
- F. Shop Applied Paint: Apply after fabrication.
  - 1. Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints complying with ANSI A224.1, "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames."

**2.3 DOORS**

- A. Provide metal doors of types and styles or grades and models indicated on drawings or schedules.
- B. Provide metal doors of SDI grades and models specified below or as indicated on drawings or schedules:
  - 1. Interior Doors: ANSI/SDI-100, Grade II, heavy-duty, Model 3 or 4, minimum 18-gage cold-rolled sheet steel faces.
  - 2. Exterior Doors: ANSI/SDI-100, Grade III, extra heavy-duty, Model 4, minimum 16-gage galvanized steel faces.
- C. Door Louvers: Provide sightproof stationary louvers for interior doors where indicated, constructed of inverted V-shaped blades formed of 24-gage cold-rolled steel set into minimum 20-gage steel frame.

**2.4 FRAMES**

- A. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 16-gage cold-rolled steel.
  - 1. Fabricate frames with mitered, coped, or welded corners.
  - 2. Form exterior frames from 14-gage galvanized steel.
- B. Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single-door frames and 2 silencers on heads of double-door frames.

**2.5 FABRICATION**

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI-100 requirements.
  - 1. Internal Construction: Manufacturer's standard honeycomb, polyurethane, polystyrene, unitized steel grid, vertical steel stiffeners, or rigid mineral fiber core with internal sound deadener on inside of face sheets where appropriate in accordance with SDI standards.
  - 2. Clearances: Not more than 1/8 inch at jambs and heads except between non-fire-rated pairs of doors not more than 1/4 inch. Not more than 3/4 inch at bottom.
- B. Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from only cold-rolled steel.

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STANDARD STEEL DOORS AND FRAMES

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- C. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- D. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel.
- E. Fabricate exterior doors, panels, and frames from galvanized sheet steel in accordance with SDI-112. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gage inverted steel channels.
- F. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- G. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM C 236 OR ASTM C 976 on fully operable door assemblies.
  - 1. Unless otherwise indicated, provide thermal-rated assemblies with U factor of 0.41 Btu/(hr x sq ft x deg F.) or better.
- H. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware in accordance with final Door Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 Series Specifications for door and frame preparation for hardware.
- I. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at project site.
- J. Locate hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware on Standard Steel Doors and Frames," published by Door and Hardware Institute.
- K. Shop Painting: Clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces.
  - 1. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
  - 2. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.
- L. Glazing Stops: Minimum 20 gage steel.
  - 1. Provide non-removable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
  - 2. Provide screw applied removable glazing beads on inside of glass, louvers, and other panels in doors.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. General: Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.
- B. Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instructions For Steel Frames," unless otherwise indicated.
  - 1. Except for frames located at existing concrete, masonry or drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

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STANDARD STEEL DOORS AND FRAMES

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2. In masonry construction, locate 3 wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry Tee anchors.
  3. At existing concrete or masonry construction, provide 3 completed opening anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb, set frames and secure to adjacent construction with bolts and masonry anchorage devices.
  4. Install fire-rated frames in accordance with NFPA Standard No. 80.
  5. In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. In closed steel stud partitions, attach wall anchors to studs with screws.
  6. In in-place drywall partitions install knock down slip-on drywall frames.
- C. Door Installation: Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI-100.
1. Install fire-rated doors with clearances as specified in NFPA Standard No. 30.
- 3.2 **ADJUST AND CLEAN**
- A. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
  - B. Final Adjustments: Check and readjust operating hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

**END OF SECTION**

SECTION 08 14 00

WOOD DOORS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this Section.

1.2 SUMMARY

- A. Extent and location of each type of wood door is indicated on drawings and in schedules.
- B. Types of doors required include the following:
1. Interior Solid core wood doors with wood veneer faces MATCH EXISTING.
- C. Field finishing of wood doors is not included in this section.
- D. Factory-prefitting to frames and factory-premachining for hardware for wood doors is included in this section. (all wood doors to be factory prepared for all finish hardware).
- F. Louvers for flush wood doors, including furnishing and installation, are specified under this section.

1.3 SUBMITTALS

- A. Product Data: Door manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and Louvers.
- B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other pertinent data.
1. For factory-premachined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.
- C. Samples: Submit samples, 1-0" square or as indicated, for the following:
1. Metal Louvers: Blade and frame in 6" lengths, for each material and finish required.

1.4 QUALITY ASSURANCE

- A. Quality Standards: Comply with the following standards:
1. NWWDA Quality Standard: I.S.1 "Industry Standard for Wood Doors", of National Wood Window and Door Association (NWWDA).
  2. AWI Quality Standard: "Architectural Woodwork Quality Standards"; including Section 1300 "Architectural Wood Doors", of Architectural Woodwork Institute (AWI) for grade of door, core construction, finish and other requirements exceeding those of NWWDA quality standard.
- B. NWWMA Quality Marking: Mark each wood door with NWWDA Wood Door Certification Hallmark

SECTION 08 14 00

WOOD DOORS

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certifying compliance with applicable requirements of NWWDA I.S. 1 Series.

1. For manufacturers not participating in NWWDA Hallmark Program, a certification of compliance may be substituted for marking of individual doors.

**1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Protect doors during transit, storage, and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors", as well as with manufacturer's instructions.
- B. Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door, frames, and hardware, using temporary, removable or concealed markings.

**1.6 PROJECT CONDITIONS**

- A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project's geographical location:
  1. Referenced AWI quality standard including Section 100-S-3 "Moisture Content".

**1.7 WARRANTY**

- A. General: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under the Contract Documents.
- B. Door Manufacturer's Warranty: Submit written agreement in door manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors that have warped (bow,cup or twist) or that show telegraphing of core construction in face veneers, or do not conform to tolerance limitations of referenced quality standards.
  1. Warranty shall also include reinstallation which may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.
  2. Warranty shall be in effect during following period of time after date of Substantial Completion.
  3. Solid Core Interior :
    - a. Life of installation
- C. Contractor's Responsibilities: Replace or refinish doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.

**PART 2 - PRODUCTS**

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WOOD DOORS

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2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:

1. Solid Core Flush:

- a. Quarter-Sawn, Book-matched, red Oak Stain-grade: Matching hardwood stile edges bonded to core, 1/8" minimum after trim. Shadow Panels to be furniture-grade applied molding, Randall Brothers RB-8504 or similar profile, of same wood species. No joints on installation. Rail Edges: Mill option soft wood bonded to core, 1 1/8" minimum after trim. Adhesive: Interior Use, Type II, 5 ply doors only.
- b. Field finishing: By paint Contractor. Stain color to be selected. Provide for three coats polyurethane.
- c. Prefit and premachining all wood doors at factory for hardware.
- d. Premachining doors within industry tolerances of plus or minus 1/32".

2.3 LOUVERS AND LIGHT FRAMES

A. Metal Louvers: Size, type and profile shown and fabricated from the following:

1. Steel: 20-gage, galvanized and factory primed for paint finish.

B. Metal Frames for Light Openings in Fire and Non-Fire Rated Doors: Manufacturer's standard frame formed of 18-gage cold-rolled steel, factory-primed, and approved for use in door of fire-rating indicated.

2.4 FABRICATION

A. Fabricate wood doors to produce doors complying with following requirements:

1. Factory-prefit and premachine doors to fit frame opening sizes indicated with the following uniform clearances and bevels:

- a. Comply with tolerance requirements of AWI for prefitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.
- b. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory premachining.

B. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.

1. Light Openings: Trim openings with moldings of material and profile indicated.

2. Louvers: Factory install louvers in prepared openings.

PART 3 - EXECUTION

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WOOD DOORS

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3.1 EXAMINATION

- A. Examine installed door frames prior to hanging door:
  - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
  - 2. Reject doors with defects.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation see Division 8 "Finish Hardware" Section of these specifications.
- B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.
  - 1. Install fire-rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.
- C. Prefit Doors: Fit to frames for uniform clearance at each edge.

3.3 ADJUSTING AND PROTECTION

- A. Operation: Rehang or replace doors which do not swing or operate freely.
- B. Finished Doors: Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

END OF SECTION



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ALUMINUM FRAMED ENTRANCES AND STOREFRONT

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

1. Exterior aluminum-framed storefronts and curtainwalls TO MATCH EXISTING FINISH.
  - a. Glazing is retained mechanically with gaskets on four sides.

- B. Related Sections include the following:

1. Division 7 Section "Building Insulation" for insulation materials field installed with aluminum-framed systems.
2. Division 7 Section "Joint Sealants" for installation of joint sealants installed with aluminum-framed systems and for sealants to the extent not specified in this Section.
3. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
4. Division 8 Section "Glazing" for glazing requirements to the extent not specified in this Section.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide aluminum-framed systems, including anchorage, capable of withstanding, without failure, the effects of the following:

1. Structural loads.
2. Thermal movements.
3. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.

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4. Dimensional tolerances of building frame and other adjacent construction.
  5. Failure includes the following:
    - a. Deflection exceeding specified limits.
    - b. Thermal stresses transferred to building structure.
    - c. Framing members transferring stresses, including those caused by thermal and structural movements, to glazing.
    - d. Glazing-to-glazing contact.
    - e. Noise or vibration created by wind and thermal and structural movements.
    - f. Loosening or weakening of fasteners, attachments, and other components.
    - g. Sealant failure.
    - h. Failure of operating units to function properly.
- B. Structural Sealant: Capable of withstanding tensile and shear stresses imposed by aluminum-framed systems without failing adhesively or cohesively. Provide sealant that fails cohesively before sealant releases from substrate when tested for adhesive compatibility with each substrate and joint condition required.
1. Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
  2. Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate because sealant-to-substrate bond strength exceeds sealant's internal strength.
- C. Structural-Sealant Joints: Designed to produce tensile or shear stress in structural-sealant joints of less than **20 psi (138 kPa)**.
- D. Structural Loads:
1. Wind Loads: [As required by current Code] .
  2. Seismic Loads: [As required by current Code] .
- E. Deflection of Framing Members:
1. Deflection Normal to Wall Plane: Limited to [1/175 of clear span for spans up to **13 feet 6 inches (4.1 m)** and to 1/240 of clear span plus **1/4 inch (6.35 mm)** for spans greater

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- than 13 feet 6 inches (4.1 m)] or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19 mm), whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to [1/360 of clear span or 1/8 inch (3.2 mm), whichever is smaller] [amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components directly below to less than 1/8 inch (3.2 mm) and clearance between members and operable units directly below to less than 1/16 inch (1.5 mm)].
- F. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:
1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
  2. When tested at [150] percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding [0.2] percent of span.
  3. Test Durations: As required by design wind velocity but not less than 10 seconds.
- G. Story Drift: Provide aluminum-framed systems that accommodate design displacement of adjacent stories indicated.
1. Design Displacement.
  2. Test Performance: Meeting criteria for passing based on building occupancy type when tested according to AAMA 501.4 at design displacement[ and 1.5 times design displacement].
- H. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

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2. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
  - a. Test High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of [180 deg F (82 deg C)] .
  - b. Test Low Exterior Ambient-Air Temperature: [0 deg F (minus 18 deg C)] .
  - c. Test Interior Ambient-Air Temperature: [75 deg F (24 deg C)] ASTM E 283 requires using a static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa), unless otherwise indicated, which is equivalent to a 25-mph (40-km/h) wind. Static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa) is equivalent to a 50-mph (80-km/h) wind.
- I. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of [0.06 cfm/sq. ft. (0.03 L/s per sq. m)] of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of [1.57 lbf/sq. ft. (75 Pa)] [6.24 lbf/sq. ft. (300 Pa)] .
- J. Water Penetration Under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of [20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa)] .
- K. Water Penetration Under Dynamic Pressure: Provide aluminum-framed systems that do not evidence water leakage through fixed glazing and framing areas when tested according to AAMA 501.1 under dynamic pressure equal to [20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa)] .
  1. Maximum Water Leakage: [According to AAMA 501.1] [No uncontrolled water penetrating systems or appearing on systems' normally exposed interior surfaces from sources other than condensation]. Water controlled by flashing and gutters that is drained to exterior and cannot damage adjacent materials or finishes is not considered water leakage.

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- L. Condensation Resistance: Provide aluminum-framed systems with fixed glazing and framing areas having condensation-resistance factor (CRF) of not less than [53] when tested according to AAMA 1503.
- M. Average Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having average U-factor of not more than [0.69 Btu/sq. ft. x h x deg F (3.92 W/sq. m x K)] when tested according to AAMA 1503.
- N. Sound Transmission: Provide aluminum-framed systems with fixed glazing and framing areas having minimum STC [32] according to ASTM E 413 and an OITC [26] according to ASTM E 1332, as determined by testing according to ASTM E 90.

1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of product indicated.
- B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
  - 2. Include details of provisions for system expansion and contraction and for draining moisture occurring within the system to the exterior.
  - 3. **For entrances and doors with panics, include Von Duprin 33 rim panic, electronic strike, Von Duprin 4040 closer (or equal), 1 ½ set offset pivots, and 1" diameter offset 15" bent bar pull.**
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of systems, made from 12-inch (300-mm) lengths of full-size components and showing details of the following:

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1. Joinery.
  2. Anchorage.
  3. Expansion provisions.
  4. Glazing.
  5. Flashing and drainage.
- F. Welding certificates.
- G. Qualification Data: For Installer [and testing agency].
- H. Preconstruction Sealant Test Reports: For structural-sealant-glazed systems, compatibility and adhesion test reports from sealant manufacturer indicating that materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with sealants. Include sealant manufacturer's interpretation of test results for sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.
- I. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems.
- J. Structural-Sealant-Glazing Quality-Control Program: Developed specifically for Project.
- K. Structural-Sealant-Glazing Quality-Control Program Reports: Documenting quality-control procedures and verifying results for aluminum-framed systems.
- L. Field quality-control test and inspection reports.
- M. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.
- N. Warranties: Special warranties specified in this Section.
- 1.5 QUALITY ASSURANCE
- A. Installer Qualifications: Capable of assuming engineering responsibility and performing work of this Section and who is acceptable to manufacturer.
1. Engineering Responsibility: Preparation of data for aluminum-framed systems including Shop Drawings based on testing and engineering analysis of manufacturer's standard units

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in assemblies similar to those indicated for this Project and submission of reports of tests performed on manufacturer's standard assemblies.

- a. Include structural-sealant-glazing quality-control program development and reporting complying with ASTM C 1401 recommendations including, but not limited to, system material qualification procedures, preconstruction sealant-testing program, and procedures and intervals for system fabrication and installation reviews and checks.
- B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 699 for testing indicated.
- C. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- D. Preconstruction Sealant Testing: For structural-sealant-glazed systems, perform sealant manufacturer's standard tests for compatibility and adhesion of sealants with each material that will come in contact with sealants and each condition required by aluminum-framed systems.
1. Test a minimum of five samples of each metal, glazing, and other material.
  2. Prepare samples using techniques and primers required for installed systems.
  3. For materials that fail tests, determine corrective measures required to prepare each material to ensure compatibility with and adhesion of sealants, including, but not limited to, specially formulated primers. After performing these corrective measures on the minimum number of samples required for each material, retest materials.
- E. Accessible Entrances: Comply with the Georgia Accessibility Code, [the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility

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Guidelines for Buildings and Facilities (ADAAG)."] [ICC/ANSI A117.1.] [FED-STD-795, "Uniform Federal Accessibility Standards."] Delete first paragraph below if no welding. Retain "Welding certificates" Paragraph in "Submittals" Article if retaining below.

- F. Welding: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code-- Aluminum."
- G. Structural-Sealant Glazing: Comply with recommendations in ASTM C 1401, "Guide for Structural Sealant Glazing."
- H. Structural-Sealant Joints: Design reviewed and approved by structural-sealant manufacturer.
- I. Mockups: Build mockups to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  - 1. Build mockup of typical wall area as shown on Drawings.
  - 2. Field testing shall be performed on mockups according to requirements in Part 3 "Field Quality Control" Article.
  - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating aluminum-framed systems without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 WARRANTY

- A. Special Assembly Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that deteriorate as defined in this Section within specified warranty period.



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1. Failures include, but are not limited to, the following:
    - a. Structural failures including, but not limited to, excessive deflection.
    - b. Noise or vibration caused by thermal movements.
    - c. Deterioration of metals[, metal finishes,] and other materials beyond normal weathering.
    - d. Adhesive or cohesive sealant failures.
    - e. Water leakage through fixed glazing and framing areas.
    - f. Failure of operating components to function properly.
  2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not include normal weathering.
1. Warranty Period: [20] years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Storefront Product: The design for aluminum-framed systems is based on Kawneer 500 Swing Doors with 10" Bottom Rails and Tri-fab 451T Storefront. Color to MATCH EXISTING. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
  1. Arch Aluminum & Glass Co., Inc.
  2. CMI Architectural Products, Inc.
  3. Commercial Architectural Products, Inc.

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4. EFCO Corporation.
5. Kawneer.
6. Pittco Architectural Metals, Inc.
7. Tubelite Inc.
8. United States Aluminum.
9. Vistawall Architectural Products.
10. YKK AP America Inc.

D. Basis of Design for Curtainwall to be Kawneer 1600.

## 2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish to be MATCH EXISTING

1. Sheet and Plate: **ASTM B 209 (ASTM B 209M)**.
2. Extruded Bars, Rods, Profiles, and Tubes: **ASTM B 221 (ASTM B 221M)**.
3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Structural Profiles: ASTM B 308/B 308M.
5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

B. Steel Reinforcement: With manufacturer's standard corrosion-resistant primer complying with SSPC-PS Guide No. 12.00 applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.

1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

## 2.3 FRAMING SYSTEMS

A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.

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1. Construction: [Framing members are composite assemblies of two separate extruded-aluminum components permanently bonded by an elastomeric material of low thermal conductance]
- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
  1. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
  2. Reinforce members as required to receive fastener threads.
  3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
- D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- E. Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials. Form exposed flashing from sheet aluminum finished to match framing and of sufficient thickness to maintain a flat appearance without visible deflection.
- F. Framing System Gaskets and Sealants: Manufacturer's standard recommended by manufacturer for joint type.

#### 2.4 GLAZING SYSTEMS

- A. Glazing for all Storefront and curtainwall Exterior Doors and Windows: **1" INSULATED UNITS WITH 1/4" TEMPERED VITRO (FORMERLY PPG) HIGH-PERFORMANCE SOLARBAN R100 OUTBOARD LITE, LO E COATING. INBOARD LITE TO BE 1/4" CLEAR LAMINATED.**
- B. Glazing Gaskets: Manufacturer's standard compression types, replaceable, molded or extruded, that maintain uniform pressure and watertight seal.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric types.

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- D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
  
- E. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type and as follows:
  - 1. Structural Sealant: ASTM C 1184, neutral-curing silicone formulation compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant, and approved by structural-sealant manufacturer for use in aluminum-framed systems indicated.
    - a. Color: Black.
  
  - 2. Weather-seal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; neutral-curing silicone formulation compatible with structural sealant and other system components with which it comes in contact; and recommended by structural- and weather-seal-sealant and aluminum-framed system manufacturers for this use.
    - a. Color: Matching structural sealant.

## 2.5 DOORS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  
- C. Basis-of-Design Product: The design for aluminum-framed systems is based on Kawneer Entrance system 500 wide style WITH 10" Bottom Rails. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
  - 1. Arch Aluminum & Glass Co., Inc.
  - 2. CMI Architectural Products, Inc.
  - 3. Commercial Architectural Products, Inc.
  - 4. EFCO Corporation.

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ALUMINUM FRAMED ENTRANCES AND STOREFRONT

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5. Kawneer.
6. Pittco Architectural Metals, Inc.
7. Tubelite Inc.
8. United States Aluminum.
9. Vistawall Architectural Products.
10. YKK AP America Inc.

2.6 ACCESSORY MATERIALS

- A. Insulating Materials: As specified in Division 7 Section "Building Insulation."
- B. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 7 Section "Joint Sealants."
- C. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.7 FABRICATION

- A. Form aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
  1. Profiles that are sharp, straight, and free of defects or deformations.
  2. Accurately fitted joints with ends coped or mitered.
  3. Means to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
  4. Physical and thermal isolation of glazing from framing members.
  5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  6. Provisions for field replacement of glazing from [exterior] [interior] [interior for vision glass and exterior for spandrel glazing or panels].

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7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Mechanically Glazed Framing Members: Fabricate for flush glazing (without projecting stops).

E. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device (dutchman) to retain glazing in place while structural sealant cures.

F. Storefront Framing: Fabricate components for assembly using shear-block system. ALUMINUM

FINISHES

2.8

Aluminum Storefront and Doors to MATCH EXISTING finish.

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

C. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.

D. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

E. Class II, Color Anodic Finish: AA-M12C22A32/A34 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, integrally colored or electrolytically deposited color coating 0.010 mm or thicker) complying with AAMA 611.

F. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General:
  - 1. Comply with manufacturer's written instructions.
  - 2. Do not install damaged components.
  - 3. Fit joints to produce hairline joints free of burrs and distortion.
  - 4. Rigidly secure non-movement joints.
  - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
  - 6. Seal joints watertight, unless otherwise indicated.
- B. Metal Protection:
  - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.
  - 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
- D. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" and to produce weather-tight installation.
- E. Install components plumb and true in alignment with established lines and grades, without warp or rack.

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- F. Install glazing as specified in Division 8 Section "Glazing."
  - 1. Structural-Sealant Glazing:
    - a. Prepare surfaces that will contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.
    - b. Install weather-seal sealant according to Division 7 Section "Joint Sealants" and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.
  
- G. Entrances: Install to produce smooth operation and tight fit at contact points.
  - 1. Exterior Entrances: Install to produce tight fit at weather stripping and weathertight closure.
  - 2. Field-Installed Hardware: Install surface-mounted hardware according to hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.
  
- H. Install insulation materials as specified in Division 7 Section "Building Insulation."
  
- I. Install perimeter joint sealants as specified in Division 7 Section "Joint Sealants" and to produce weather-tight installation.
  
- J. Erection Tolerances: Install aluminum-framed systems to comply with the following maximum tolerances:
  - 1. Location and Plane: Limit variation from true location and plane to **1/8 inch in 12 feet (3 mm in 3.7 m)**; **1/4 inch (6 mm)** over total length.
  - 2. Alignment:
    - a. Where surfaces abut in line, limit offset from true alignment to **1/16 inch (1.5 mm)**.
    - b. Where surfaces meet at corners, limit offset from true alignment to **1/32 inch (0.8 mm)**.
  - 3. Diagonal Measurements: Limit difference between diagonal measurement to **1/8 inch (3 mm)**.



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3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
  
- B. Testing Services: Testing and inspecting of representative areas to determine compliance of installed systems with specified requirements shall take place as follows and in successive stages as indicated on Drawings. Do not proceed with installation of the next area until test results for previously completed areas show compliance with requirements.
  - 1. Structural-Sealant Compatibility and Adhesion: Structural sealant shall be tested according to recommendations in ASTM C 1401.
    - a. Destructive test method, Method A, Hand Pull Tab (Destructive) in ASTM C 1401, Appendix X2 shall be used.
      - 1) A minimum of [two] [four] [six] <Insert number> areas on each building face shall be tested.
      - 2) Repair installation areas damaged by testing.
  
  - 2. Structural-Sealant Glazing Inspection: After installation of aluminum-framed systems is complete, structural-sealant glazing shall be inspected and evaluated according to ASTM C 1401 recommendations.
  
  - 3. Air Infiltration: Areas shall be tested for air leakage of [1.5 times the rate specified for laboratory testing under Part 1 "Performance Requirements" Article, but not more than 0.09 cfm/sq. ft. (0.03 L/s per sq. m),] <Insert rate> of fixed wall area when tested according to ASTM E 783 at a minimum static-air-pressure difference of [1.57 lbf/sq. ft. (75 Pa)] [6.24 lbf/sq. ft. (300 Pa)] <Insert pressure>.
  
  - 4. Water Penetration: Areas shall be tested according to ASTM E 1105 at a minimum [uniform] [and] [cyclic] static-air-pressure difference of [0.67 times the static-air-pressure difference specified for laboratory testing under Part 1 "Performance Requirements" Article, but not less than 4.18 lbf/sq. ft. (200 Pa),] <Insert pressure> and shall not evidence water penetration.

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5. Water Spray Test: Before installation of interior finishes has begun, a minimum area of **75 feet (23 m)** by 1 story of aluminum-framed systems designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
  
- C. Repair or remove work where test results and inspections indicate that it does not comply with specified requirements.
  
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.4 ADJUSTING

- A. Entrances: Adjust operating hardware for smooth operation according to hardware manufacturers' written instructions.

END OF SECTION 08411

SECTION 08 71 10  
FINISH HARDWARE

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PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to the work of this section.

PROVIDE PANIC HARDWARE ON ALL CORRIDOR DOORS, EXTERIOR DOORS, DOORS LEADING INTO LOBBIES AND GYMNASIUM AND OTHER DOORS IN PATH OF EGRESS OR IN ROOMS CONTAINING MORE THAN 50 OCCUPANTS.

ALL HARDWARE TO BE **MATCH EXISTING** FINISH.

1.02 DESCRIPTION OF WORK

- A. Definition: "Builders Hardware" includes items known commercially as builders hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frames.
- B. Extent of finish hardware required is to be scheduled by hardware supplier based on the location and operation of each door. The Architect and Owner will review and verify the function of each and every door in the facility.
- C. Types of finish hardware required include the following:
1. Hinges
  2. Pivots
  3. Lock cylinders and keys
  4. Lock and latch sets
  5. Bolts
  6. Exit devices
  7. Push/pull units
  8. Closers
  9. Overhead holders
  10. Miscellaneous door control devices
  11. Door trim units
  12. Protection plates
  13. Weatherstripping, door seals
  14. Thresholds
  15. Electronic Security Products

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16. Silencers

1.03 QUALITY ASSURANCE:

- A. Manufacturer: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.
- B. Supplier: A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or who employs an experienced architectural consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.
- C. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware which has been tested and listed by UL or FM for types and sizes of doors required and complies with requirements of door and door frame labels.
  - 1. Where emergency exit devices are required on fire-rated doors (with supplementary marking on doors' UL or FM labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL or FM label on exit devices indicating "Fire Exit Hardware."

1.04 SUBMITTALS

- A. Product Data: Submit manufacturers technical product data for each item of hardware in accordance with Division 1 section "Submittals". Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.
- B. **Hardware Schedule: Submit a hardware schedule in manner indicated below PREPARED BY A CERTIFIED, LICENSES HARDWARE SPECIFIER. Coordinate hardware with fire ratings, applications, doors, frames, and related work to ensure proper size, thickness, hand, function and finish of hardware.**
- C. Final Hardware Schedule Content: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
  - 1. Type, style, function, size and finish of each hardware item.
  - 2. Name and manufacturer of each item.
  - 3. Fastenings and other pertinent information.
  - 4. Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.

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5. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
  6. Mounting locations for hardware.
  7. Door and frame sizes and materials.
- D. Submittal Sequence: Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.
- E. Samples: Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.
1. Samples will be returned to the supplier. Units which are acceptable and remain undamaged through submittal, review and field comparison procedures may, after final check of operation, be used in the work, within limitations of keying coordination requirements.
- F. Templates: Finish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.
- 1.05 **PRODUCT HANDLING:**
- A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.
  - B. Packaging of hardware, is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.
  - C. Inventory hardware jointly with representatives of the hardware supplier and the hardware installer until each is satisfied that the count is correct.
  - D. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.
  - E. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling and installation of hardware items which are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.

**PART 2 - PRODUCTS**

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2.01 SCHEDULED HARDWARE

**HARDWARE IS TO MATCH COUNTY'S HARDWARE STANDARD - VERIFY WITH OWNER.**

- A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware is to be determined by the door use and location in conjunction with the Hardware Allowance contained in this Project Manual.
- B. Manufacturer's product designations: One or more manufacturers are listed for each hardware type required. An asterisk (\*) after a manufacturer's name indicates whose product designation is used in the Hardware Schedule for purposes of establishing minimum requirements. Provide either the product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in this section.

2.02 MATERIALS AND FABRICATION:

- A. Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- B. Manufacturer's Name Plate: Do not use manufacturer's products which have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.
  - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- C. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for the application hardware units by applicable ASNI A156 series standard for each type hardware item and with ASNI A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.
- D. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- E. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

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- F. Provide concealed fasteners for hardware units which are exposed when door is closed, except to extent no standard units of the type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.
- G. Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.

**2.03 HINGES, BUTTS, AND PIVOTS:**

- A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- B. Screws: Furnish Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.
- C. Hinge Pins: Except as otherwise indicated, provide continuous hinges per door specification.
- D. Tips: Flat button and matching plug, finished to match leaves, except where hospital tip (HT) indicated.
- E. Number of hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90" or less in height and one additional hinge for each 30" of additional height.
- F. Size of hinges: Unless otherwise scheduled, size hinges in accordance with the published recommendations of the specified manufacturer.

**2.04 LOCK CYLINDERS AND KEYING:**

- A. General: Supplier will meet with Owner to finalize keying requirements and obtain final instructions in writing.
- B. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), integrated with Owner's existing system.
- C. Equip locks with high security cylinders which comply with performance requirements for Grade 1 cylinders as listed in ANSI A156.5 and which have been tested for pick and drill resistance requirements of UL 437 and are UL listed.
- D. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
- E. Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.

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- F. Comply with Owner's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.
- G. Key Material: Provide keys of nickel silver only.
- H. Key Quantity: Furnish 3 change keys for each lock; 5 master keys for each master system; and 5 grandmaster keys for each grandmaster system.
- I. Deliver keys to Owner's representative.

**2.05 LOCKS, LATCHES, AND BOLTS:**

- A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt.
  - 1. Provide dust-proof strikes for foot bolts, except where special threshold construction provides non-recessed strike for bolt.
  - 2. Provide roller type strikes where recommended by manufacturer of the latch and lock units.
- B. Lock Throw: Provide 3/4" minimum throw of latch and 1" throw of deadbolt. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.
- C. Flush Bolt Heads: Minimum of 1/2" diameter rods of brass, bronze, or stainless steel, with minimum 12" long rod for doors up to 7'0" in height. Provide longer rods as necessary for doors exceeding 7'0" in height.
- D. Exit Device Dogging: Except on fire-rated doors, wherever closers are provided on doors equipped with exit devices, equip the units with keyed dogging device to hold the push bar down and the latch bolt in the open position.
- E. Rabbeted Doors: Where rabbeted door stiles are indicated, provide special rabbeted front on lock and latch units and bolts.

**2.06 PUSH/PULL UNITS:**



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- A. Concealed Fasteners: Provide manufacturer's special concealed fastener system for installation; through-bolted for matched pairs, but not for single units.

**2.07 CLOSERS AND DOOR CONTROL DEVICES:**

- A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.
- B. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A 117.1 provisions for door opening force and delayed action closing.
- C. Combination Door Closers and Holders: Provide units designed to hold door in open position under normal usage and to release and automatically close door under fire conditions. Incorporate an integral electromagnetic holder mechanism designed for use with UL listed fire detectors, provided with normally closed switching contacts.
  - 1. Provide integral smoke detector device in combination door closers and holders complying with UL 228.

**2.08 DOOR TRIM UNITS:**

- A. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops and similar units); either machine screws or self-tapping screw.
- B. Fabricate edge trim of stainless steel, not more than 1/2" nor less than 1/16" smaller in length than door dimension.
- C. Fabricate protection plates (armor, kick or mop) not more than 1-1/2" less than door width on stop side and not more than 1/2" less than door width on pull side, plate heights shall be 36", 8", and 4" respectively. Armor plates on fire doors shall conform to NFPA 80.

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1. Metal Plates: Stainless steel, .050" (U.S. 18 ga).

**2.09 WEATHERSTRIPPING:**

- A. General: Except as otherwise indicated, provide continuous weatherstripping at each edge of every exterior door leaf. Provide type, sizes and profiles shown or scheduled. Provide non-corrosive fasteners as recommended by manufacturer for application indicated.

**2.10 THRESHOLDS:**

- A. General: Except as otherwise indicated provide standard metal threshold unit of type, size, and profile as shown or scheduled.

**2.11 SILENCERS:**

- A. Provide silencers except at doors equipped with weatherstrip, soundseals, lighseals, or other gasketing. Provide 3 silencers per single door and 4 silencers per pair of doors.

**2.12 HARDWARE FINISHES:**

- A. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.
- B. Provide finishes which match those established by BHMA or, if none established, match the Architect's sample.
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.

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- D. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI A156.18 "Materials & Finishes Standard" by BHMA, including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.
- B. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
- C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. ~~Where~~ cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- F. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

3.02 ADJUST AND CLEAN:

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit.

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Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

- B. Clean adjacent surfaces soiled by hardware installation.
- C. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- D. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

**3.03 FINISHES**

All finishes to be US 32D. Hinges on metal doors shall be primed for painting, ANSI 600.  
Surface mounted door closers shall be painted to match adjacent hardware.

**END OF SECTION**

SECTION 08 80 00  
GLASS AND GLAZING

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**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

**1.2 SUMMARY**

- A. Extent of glass and glazing work is indicated on drawings and schedules.
- B. Types of work in this section include glass and glazing for:

1. Glazing for all Storefront and curtainwall Exterior Doors and Windows: **1" INSULATED UNITS WITH ¼" TEMPERED HIGH-PERFORMANCE TINTED OUTBOARD LITE, LO E COATING. INBOARD LITE TO BE ¼" CLEAR TEMPERED.**

2. All interior windows to be tempered.
3. All other interior glass to be tempered.

**1.3 SYSTEM DESCRIPTION**

- A. Provide glass and glazing that has been produced, fabricated and installed to withstand normal thermal movement, wind loading and impact loading (where applicable), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glass and glazing materials and other defects in the work.

1. Normal thermal movement is defined as that resulting from an ambient temperature range of 120 deg F (67 deg C) and from a consequent temperature range within glass and glass framing members of 180 deg F (100 deg C).
2. Deterioration of insulating glass is defined as failure of hermetic seal due to other causes than breakage which results in intrusion of dirt or moisture, internal condensation or fogging, deterioration of protected internal glass coating, if any, resulting from seal failure, and any other visual evidence of seal failure or performance.
3. Deterioration of coated glass is defined as the development of manufacturing defects including peeling, cracking or other indications of deterioration in metallic coating due to normal conditions of use.

**1.4 SUBMITTALS**

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- A. Product Data: Submit manufacturer's technical data for each glazing material and fabricated glass product required, including installation and maintenance instructions.
- B. Samples: Submit, for verification purposes, 12" square samples of each type of glass indicated except for clear single pane units, and 12" long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative of adjoining framing system in color.
- C. Certificate: Submit certificates from respective manufacturers attesting that glass and glazing materials furnished for project comply with requirements.
  - 1. Separate certification will not be required for glazing materials bearing manufacturer's permanent labels designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authorities having jurisdiction.

**1.5 QUALITY ASSURANCE**

- A. Glazing Standards: Comply with recommendations of Flat Glass Marketing Association (FGMA) "Glazing Manual" and "Sealant Manual" except where more stringent requirements are indicated. Refer to those publications for definitions of glass and glazing terms not otherwise defined in this section or other referenced standards.
- B. Safety Glazing Standard: Where safety glass is indicated or required by authorities having jurisdiction, provide type of products indicated which comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.
  - 1. Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.
- C. Insulating Glass Certification Program: Provide insulating glass units permanently marked either on spacers or at least one component pane of units with appropriate certification label of inspecting and testing organization indicated below:
  - 1. Insulating Glass Certification Council (IGCC)
  - 2. Associated Laboratories, Inc. (ALI)
- D. Single Source Responsibility for Glass: To ensure consistent quality of appearance and performance, provide materials produced by a single manufacturer or fabricator for each kind and condition of glass indicated and composed of primary glass obtained from a single source for each type and class required.

**1.6 DELIVERY, STORAGE, AND HANDLING**

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A. Protect glass and glazing materials during delivery, storage, and handling to comply with manufacturer's directions and as required to prevent edge damage to glass, and damage to glass and glazing materials from effects of moisture including condensation, of temperature changes, of direct exposure to sun, and from other causes.

1. Where insulating glass units will be exposed to substantial altitude changes, avoid hermetic seal ruptures by complying with insulating glass fabricator's recommendations for venting and sealing.

**1.7 PROJECT CONDITIONS**

A. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing material manufacturer or when joint substrates are wet due to rain, frost, condensation or other causes.

1. Install liquid sealants at ambient and substrate temperatures above 40 degrees F (4.4 deg C).

**2.1 MANUFACTURERS**

A. Manufacturers: Subject to compliance with requirements, provide products of one of the following:

1. Manufacturers of Clear and Tinted Float Glass:

- a. AFG Industries, Inc.
- b. Ford Glass Division
- c. Guardian Industries Corp.
- d. LOF Glass, Inc.
- e. PPG Industries, Inc.
- f. Saint-Gobain/Euroglass.

2. Manufacturers of Heat-Treated and Tempered Glass:

- a. AFG Industries, Inc.
- b. Cardinal IG.
- c. Environmental Glass Products
- d. Falconer Glass Industries
- e. Ford Glass Division
- f. Guardian Industries Corp.
- g. Hordis Brothers, Inc.
- h. LOF Glass, Inc.
- i. PPG Industries, Inc.
- j. Saint-Gobain/Euroglass
- k. Spectrum Glass Prod. Div., H.H. Robertson Co.

3. Manufacturers of Coated Insulated Glass:

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- a. Guardian Industries Corp.; NU-52 (2) on clear, High Light Transmitting.

4. Manufacturers of Polycarbonate Glazing and Cash/Deal Trays:

- a. Pacific Bulletproof Company. Provide Bullet Resistant polycarbonate level I, Makrolon Hygard BR750. ¾".
- b. Deal Trays – Provide a top mount 18 gauge stainless steel deal tray at each of the two windows. Bulletproof glazing to be shaped to accommodate deal trays.

**2.2 GLASS PRODUCTS, GENERAL:**

- A. Primary Glass Standard: Provide primary glass which complies with ASTM C 1036 requirements, including those indicated by reference to type, class, quality, and, if applicable, form, finish, mesh and pattern.
- B. Heat-Treated Glass Standard: Provide heat-treated glass which complies with ASTM C 1048 requirements, including those indicated by reference to kind, condition, type, quality, class, and, if applicable, form, finish, and pattern.
- C. Sizes: Fabricate glass to sizes required for glazing openings indicated, with edge clearances and tolerances complying with recommendations of glass manufacturer. Provide thicknesses indicated or, if not otherwise indicated, as recommended by glass manufacturer for application indicated.

**2.3 PRIMARY GLASS PRODUCTS**

- A. Clear Tempered Glass: Type I (transparent glass, flat), Quality q3 (glazing select), and as follows:
  - 1. All interior doors and windows.
  - 2. Store front door and side lites.

**2.4 HEAT-TREATED GLASS PRODUCTS**

- A. Manufacturing Process: Manufacture heat-treated glass as follows:
  - 1. By vertical (tong-held) or horizontal (roller hearth) process, at manufacturer's option, except provide horizontal process where indicated as "tongless" or "free of tong marks".
- B. Uncoated Clear Heat-Treated Float Glass: Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), kind as indicated below:
  - 1. Kind FT (fully tempered) where indicated.
- C. Coated Clear Heat-Treated Float Glass: Condition C (other coated glass), Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), with coating type and performance characteristics complying with requirements specified under coated glass products; kind as indicated below:
  - 1. Kind FT (fully tempered) where indicated.



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**2.5 SEALED INSULATING GLASS UNITS**

- A. General: Window wall. Provide preassembled units consisting of organically sealed panes of glass enclosing a hermetically sealed dehydrated air space and complying with ASTM E 774 for performance classification indicated as well as with other requirements specified for glass characteristics, air space, sealing system, sealant, spacer material, corner design and dessicant.
1. Exterior pane to be 1/8" green-tinted with low E coating on the # 2 surface. Interior to be 1/4" clear. Provide tempering at all locations required by code.
  2. Provide heat-treated panes of kind and at locations indicated or, if not indicated, provide heat-strengthened panes where recommended by manufacturer for application indicated and tempered where indicated or where safety glass is designated or required.
  3. Performance characteristics designated for coated insulating glass are nominal values based on manufacturer's published test data for units with 3/16" thick panes of glass and 1/4" thick air space.
    - a. U-values indicated are expressed in the number of Btu's per hour per sq. ft. per degree F difference.
  4. Performance Classification per ASTM E 774: Class A.
    - a. Thickness of Each Pane: 1/4 "
    - b. Air Space Thickness: 1/2"
    - c. Sealing System: Manufacturer's standard
    - d. Spacer Material: Manufacturer's standard metal
  5. Dessicant: Manufacturer's standard; either molecular sieve or silica gel or blend of both.
  6. Corner Construction: Manufacturer's standard corner construction.

**2.7 ELASTOMERIC GLAZING SEALANTS AND PREFORMED GLAZING TAPES:**

- A. General: Provide products of type indicated and complying with the following requirements:
1. Compatibility: Select glazing sealants and tapes of proven compatibility with other materials with which they will come into contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
  2. Suitability: Comply with recommendations of sealant and glass manufacturers for selection of glazing sealants and tapes which have performance characteristics suitable for applications indicated and conditions at time of installation.
  3. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.

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4. Colors: Provide color of exposed sealants as selected by Architect from manufacturer's standard colors.
- B. One-Part Non-Acid-Curing Silicone Glazing Sealant: Type S; Grade NS, Class 25; Uses NT, G, A, and, as applicable to uses indicated, O; and complying with the following requirements for modulus and additional joint movement capability.
1. Low Modulus: Tensile strength of 45 psi or less at 100 percent elongation when tested per ASTM D 412 after 14 days at 77 deg F (20 deg C) and 50 percent relative humidity.
- C. Preformed Butyl-Polyisobutylene Glazing Tape: Provide manufacturer's standard solvent-free butyl-polyisobutylene formulation with a solids content of 100 percent; complying with AAMA A 804.1; in extruded tape form; non-staining and non-migrating in contact with nonporous surfaces; packaged on rolls with a release paper on one side; with or without continuous spacer rod as recommended by manufacturers of tape and glass for application indicated.
- D. Products: Subject to compliance with requirements, provide one of the following:
1. One-Part Non-Acid Curing Low-Modulus Silicone Glazing Sealant:
- a. "Chem-Calk 1000"; Bostik Construction Products Div.  
b. "Dow Corning 790"; Dow Corning Corp.  
c. "864"; Pecora Corp  
d. "Omniseal"; Sonneborn Building Products Div., Rexnord Chemical Products, Inc.  
e. "Spectrum 1"; Tremco, Inc.
2. Preformed Butyl-Polyisobutylene Glazing Tape Without Spacer Rod:
- a. "Chem-Tape 40"; Bostik Construction Products Div.  
b. "Extru-Seal"; Pecora Corp.  
c. "PTI 303" Glazing Tape; Protective Treatments, Inc.  
d. "Tremco 440 Tape"; Tremco, Inc.
3. Preformed Butyl-Polyisobutylene Glazing Tape With Spacer Rod:
- a. "Chem-Tape 60"; Bostik Construction Products Div.  
b. "Shim-Seal"; Pecora Corp.  
c. "PTI 303" Shim Tape; Protective Treatments, Inc.  
d. "Pre-shimmed Tremco 440 Tape"; Tremco, Inc.

**2.8 GLAZING GASKETS**

- A. Dense Elastomeric Compression Seal Gaskets: Molded or extruded gaskets of material indicated below complying with ASTM C 864, of profile and hardness required to maintain watertight seal:
1. Neoprene

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2. EPDM
  3. Thermoplastic polyolefin rubber
  4. Any material indicated above

B. Manufacturers: Subject to compliance with requirements, provide products of one of the following:

1. Manufacturers of Preformed Gaskets:
  - a. D. S. Brown Co.
  - b. Maloney Precision Products Co.
  - c. Tremco

**2.8 MISCELLANEOUS GLAZING MATERIALS**

- A. Compatibility: Provide materials with proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants, 80 to 90 Shore A durometer hardness.
- D. Spacers: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.
- E. Edge Blocks: Neoprene, EPDM or silicone blocks as required for compatibility with glazing sealant, of size and hardness required to limit lateral movement (side-walking) of glass.
- F. Compressible Filler rods: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, flexible and resilient, with 5-10 psi compression strength for 25 percent deflection.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Require Glazier to inspect work of glass framing erector for compliance with manufacturing and installation tolerances, including those for size, squareness, offsets at corners; for presence and functioning of weep system; for existence of minimum required face or edge clearances; and for effective sealing of joinery. Obtain Glazier's written report listing conditions detrimental to performance of glazing work. Do not allow glazing work to proceed until unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Pre-Installation Meeting: At Contractor's direction, Glazier, sealant and gasket manufacturers' technical representatives, glass framing erector and other trades whose work affects glass and glazing shall meet at

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project site to review procedures and time schedule proposed for glazing and coordination with other work.

- B. Clean glazing channels and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrates. Remove lacquer from metal surfaces where elastomeric sealants are indicated for use.

**3.3 GLAZING, GENERAL**

- A. Comply with combined printed recommendations of glass manufacturers, of manufacturers of sealants, gaskets and other glazing materials, except where more stringent requirements are indicated, including those of referenced glazing standards.
- B. Glazing channel dimensions as indicated in details are intended to provide for necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation.
- C. Protect glass from edge damage during handling and installation; use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass with flares or bevels along one horizontal edge which would occur in vicinity of setting blocks so that these are located at top of opening. Remove from project and dispose of glass units with edge damage or other imperfections of kind that, when installed, weakens glass and impairs performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

**3.4 GLAZING**

- A. Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but with edge nearest corner not closer than 6" from corner, unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.
- B. Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- C. Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.
- D. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- E. Provide compressible filler rods or equivalent back-up material, as recommended by sealant and glass manufacturers, to prevent sealant from extruding into glass channel weep systems and from adhering to joints back surface as well as to control depth of sealant for optimum performance, unless otherwise

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indicated.

- F. Force sealants into glazing channels to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.
- G. Tool exposed surfaces of sealants to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.
- H. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement.
- I. Miter cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent pull away at corners; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

**3.5 PROTECTION AND CLEANING**

- A. Protect exterior glass from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contamination substances do come into contact with glass, remove immediately by method recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less often than once a month, for build-up of dirt, scum, alkali deposits or staining. When examination reveals presence of these forms of residue, remove by method recommended by glass manufacturer.
- D. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- E. Wash glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Wash glass by method recommended by glass manufacturer.

**END OF SECTION**

SECTION 09 29 00

GYPSUM BOARD

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CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. Extent of each type of gypsum drywall construction required is indicated on Drawings.
- B. This Section includes the following types of gypsum board construction:
1. All miscellaneous Steel framing members, projections, etc. to receive gypsum board
  2. Gypsum board (all to be Type X 5/8" except in wet areas use green-board, 5/8") screw-attached to steel framing and furring members
  3. All interior walls and gypsum board to extend to the underside of the deck with top sealed to deck. All Interior walls to have sound blankets.
  4. All exterior walls and gypsum board to extend to the underside of the deck.

1.3 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA 505 for definitions of terms for gypsum board construction not otherwise defined in this section or other referenced standards.

1.4 SUBMITTALS

- A. Product data from manufacturers for each type of product specified.

1.5 QUALITY ASSURANCE

- A. Fire-Resistance Ratings: Where indicated, provide materials and construction which are identical to those of assemblies whose fire resistance rating has been determined per ASTM E 119 by a testing and inspecting organization acceptable to authorities having jurisdiction.
1. Provide fire-resistance-rated assemblies identical to design designations in UL "Fire Resistance Directory" or in listing of other testing and agencies acceptable to authorities having jurisdiction.
- B. Single Source Responsibility: Obtain each type of gypsum board and related joint treatment materials from a single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of

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manufacturer or supplier.

- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.7 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
- B. Minimum Room Temperatures: For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously thereafter until drying is complete.
- C. Ventilate building spaces to remove water not required for drying joint treatment materials. Avoid drafts during dry, hot weather to prevent materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
  - 1. Steel Framing and Furring
    - a. Bostwick Steel Framing Co.
    - b. Dale Industries, Inc.e
    - c. Gold Bond Building Products Div., National Gypsum Co.
    - d. Incor, Inc.
    - e. Marino Industries Corp.
    - f. United States Gypsum Co.
  - 2. Gypsum Boards and Related Products:
    - a. Centex American Gypsum Co.
    - b. Domtar Gypsum Co.
    - c. Georgia-Pacific Corp.

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- d. Gold Bond Building Products Div., National Gypsum Co.
- e. United States Gypsum Co.

**2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS**

- A. General: provide components which comply with ASTM C 754 for materials and sizes, unless otherwise indicated.
- B. Concrete Inserts: Inserts designed for attachment to concrete forms and for embedment in concrete, fabricated from corrosion-resistant materials, with holes or loops for attachment of hanger wires and capability to sustain, without failure, a load equal to 3 times that imposed by ceiling construction, as determined from testing per ASTM E 488, conducted by an independent testing laboratory.
- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
- D. Channels: Cold-rolled Steel, 0.0598 inch minimum thickness of base (uncoated) metal and 7/16 inch wide flanges, protected with rust-inhibitive paint, and as follows:
  - 1. Carrying Channels: 2 inches deep, 590 lbs per 1000 ft., unless otherwise indicated.
- E. Steel Studs for Furring Channels: ASTM C 645, with flange edges bent back 90 deg and doubled over to form 3/16 inch minimum lip return), minimum thickness of base (uncoated) metal and minimum depth as follows:
  - 1. Thickness: 0.0329 inch, unless otherwise indicated
  - 2. Depth: 3-5/8 inches, unless otherwise indicated
- F. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth of 7/8 inch, a minimum thickness of base (uncoated) metal as follows:
  - 1. Thickness: 0.0179 inch, unless otherwise indicated

**2.3 GYPSUM BOARD**

- A. General: Provide gypsum board, all "green-board" (Georgia Pacific "Tough-Rock" or equal) in maximum lengths available to minimize end-to-end joints.
  - 1. Thickness: Provide gypsum board in thicknesses indicated to comply with ASTM C 840 for application system and support spacing indicated.
- B. Gypsum Wallboard: ASTM C 36, and as follows:
  - 1. Type: Green-board, water-resistant (Georgia Pacific "Tough-Rock" or equal, throughout the entire facility.
  - 2. Type: Type X for fire-resistance-rated assemblies
  - 3. Edges: Tapered
  - 4. Thickness: 5/8 inch



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GYPSUM BOARD

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5. Products: Subject to compliance with requirements, provide one of the following products where Type X gypsum wallboard is indicated:
  - a. "Gyprock Fireguard 'C' Gypsum Board"; Domtar Gypsum Co.
  - b. "Fire-Shield G"; Gold Bond Building Products, Div., National Gypsum Co.
  - c. "SHEETROCK Brand FIRECODE 'C' Gypsum Panels"; United States Gypsum Co.
  
- C. Gypsum Backing Board for Multi-Layer Applications: ASTM C 442 or, where backing board is not available from manufacturer, gypsum wallboard, ASTM C 36, and as follows:
  1. Type: Regular, unless otherwise indicated
  2. Type: Type X for fire-resistance-rated assemblies
  3. Edges: Manufacturer's standard
  4. Thickness: 5/8 inch
  
- D. Water-Resistant Gypsum Backing Board: ASTM C 630, and as follows:
  1. Type: Regular, unless otherwise indicated
  2. Type: Type X for fire-resistance-rated assemblies
  3. Thickness: 5/8 inch

## 2.4 TRIM ACCESSORIES

- A. Cornerbead and Edge Trim for Interior Installation: Provide corner beads, edge trim and control joints which comply with ASTM C 1047 and requirements indicated below:
  1. Material: Formed metal, plastic or metal combined with paper, with metal complying with the following requirement:
    - a. Sheet Steel zinc-coated by hot-dip process
  2. Edge trim shapes indicated below by reference to designations of Fig. 1 in ASTM C 1047:
    - a. "LC" Bead, unless otherwise indicated
    - b. "LK" Bead with square nose for use with kerfed jambs
    - c. "L" Bead where indicated
    - d. "U" Bead where indicated
  3. Metal Cornerbead and Edge Trim for Exterior Ceilings: Comply with the following requirements:
    1. Edge trim complying with ASTM C 1047, formed from rolled zinc, shape "LC" Bead per Fig. 1, unless otherwise indicated.

## 2.5 GYPSUM BOARD JOINT TREATMENT MATERIALS

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GYPSUM BOARD

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- A. General: Provide materials complying with ASTM C 475, ASTM C 840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
- B. Joint Tape: Paper reinforcing tape, unless otherwise indicated.
- C. Setting-Type Joint Compounds: Factory-prepackaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
  - 1. Where setting-type joint compounds are indicated for use as taping and topping compounds, use formulation for each which develops greatest bond strength and crack resistance and is compatible with other joint compounds applied over it.
  - 2. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
  - 3. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer for this purpose.
- D. Drying-Type Joint Compounds: Factory-prepackaged vinyl-based products complying with the following requirements for formulation and intended use.
  - 1. Ready-Mix Formulation: Factory-premixed product
  - 2. Taping compound formulated for embedding tape and for first coat over fasteners and flanges of corner beads and edge trim.
  - 3. Topping compound formulated for fill (second) and finish (third) coats.
  - 4. All-purpose compound formulated for use as both taping and topping compound.

**2.6 MISCELLANEOUS MATERIALS**

- A. General: Provide auxiliary materials for gypsum drywall construction which comply with referenced standards and the recommendations of the manufacturer of the gypsum board.
- B. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.
- C. Gypsum Board Screws: ASTM C 1002
- D. Asphalt Felt: ASTM D 226, Type I (No. 15)
- E. Concealed Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant complying with requirement specified in Division 7 section "Joint Sealers".

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

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- A. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Ceiling Anchorages: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling anchors in a manner that will develop their full strength and at spacing required to support ceiling.
  - 1. Furnish concrete inserts and other devices indicated, to other trades for installation well in advance of time needed for coordination with other construction.

**3.3 INSTALLATION OF STEEL FRAMING, GENERAL**

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar construction to comply with details indicated and with recommendations of gypsum board manufacturer, or if none available, with "Gypsum Construction Handbook" published by United States Gypsum Co.
- C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement, at locations indicated below:
  - 1. Where edges of suspended ceilings abut building structure horizontally at ceiling perimeters or penetration of structural elements.
  - 2. Where partition and wall framing abuts overhead structure.
- D. Do not bridge building expansion and control joints with steel framing or furring members; independently frame both sides of joints with framing or furring members.

**3.4 INSTALLATION OF STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS**

- A. Secure hangers to structural support by connecting directly to structure where possible.
- B. Do not connect or suspend steel framing from ducts, pipes or conduit.
- C. Keep hangers and braces 2 inches clear of ducts, pipes and conduits.
- D. Sway-brace suspended steel framing with hangers used for support.
- E. Install suspended steel framing components in sizes and at spacings indicated but not less than that

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required by referenced steel framing installation standard.

1. Wire Hangers: 0.1620 inch diameter (8 gage), 4 ft. on center
  2. Carrying Channels (Main Runners): 1-1/2 inch, 4 ft. on center
  3. Rigid Furring Channels (Furring Members): 16 inches on center
- F. Installation Tolerances: Install steel framing components for suspended ceiling so that cross furring members or grid suspension members are level to within 1/8 inch in 12 ft. as measured both lengthwise on each member and transversely between parallel members.
- G. Wire-tie or clip furring members to main runners and to other structural supports as indicated.

3.5 APPLICATION AND FINISHING OF GYPSUM BOARD, GENERAL

- A. Gypsum Board Application and Finishing Standard: Install and finish gypsum board to comply with ASTM C 840.
- B. Install sound attenuation blankets where indicated, prior to gypsum board unless readily installed after board has been installed.
- C. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
- D. Install ceiling boards across framing in the manner which minimizes the number of end-butt joints, which avoids end joints in the central area of each ceiling. Stagger end joints at least 24 inches.
- E. Install wall/partition boards in manner which minimizes the number of end-butt joints or avoids them entirely where possible. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs.
- F. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.
- G. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- H. Attach gypsum board to steel studs so that leading edge or end of each board is attached to open (unsupported) edge of stud flange first.
- I. Attach gypsum board to supplementary framing and blocking provides for additional support at openings and cutouts.

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- J. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32 inches wide. Apply spot grout at each jamb anchor clip just before inserting board into frame.
- K. Form control joints and expansion joints at locations indicated, with space between edges of boards, prepared to receive trim accessories.
- L. Cover both faces of steel stud partition framing with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls which are braced internally.
  - 1. Except where 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 area, and may be limited to not less than 75 percent of full coverage.
  - 2. Fit gypsum board around ducts, pipes, and conduits.
  - 3. Where partitions intersect open concrete coffers, cut gypsum board to fit profile of coffers and allow 1/4 to 1/2 inch wide joint for sealant.
- M. Isolate perimeter of non-load-bearing drywall partitions at structural abutments. Provide 1/4 inch to 1/2 inch space and trim edge with "U" bead edge trim. Seal joints with acoustical sealant.
- N. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.6 METHODS OF GYPSUM BOARD APPLICATION

- A. Single-Layer Application: Install gypsum wallboard as follows:
  - 1. On ceilings apply gypsum board prior to wall/partition board application to the greatest extent possible.
  - 2. On partitions/walls apply gypsum board vertically (parallel to framing), unless otherwise indicated, and provide sheet lengths which will minimize end joints.
- B. Wall Tile Base: Where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install gypsum backing board.
  - 1. In "dry" areas install gypsum backing board or wallboard with tapered edges taped and finished to produce a flat surface.
  - 2. At tubs, toilets, janitor closets, and similar "wet" areas, install water-resistant gypsum backing board to comply with ASTM C 840 and recommendations of gypsum board manufacturer.
  - 3. At showers, tubs and similar "wet areas" install glass mesh mortar units and treat joints to comply with manufacturer's recommendations for type of application indicated.
- C. Double-Layer Application: Install gypsum backing board for base layer and gypsum wallboard for face layer.

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1. On partitions/walls apply base layer and face layers vertically (parallel to framing) with joints of base layer over supports and face layer joints offset at least 10 inches with base layer joints.
- D. Single-Layer Fastening Methods: Apply gypsum boards to supports as follows:
  1. Fasten with screws.
- E. Double-Layer Fastening Methods: Apply base layer of gypsum board and face layer to base layer as follows:
  1. Fasten both base layers and face layers separately to supports with screws.

### 3.7 INSTALLATION OF DRYWALL TRIM ACCESSORIES

- A. General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges to comply with manufacturer's recommendations.
- B. Install corner beads at external corners.
- C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound except where "U" bead (semi-finishing type) is indicated.
  1. Install "LC" bead where drywall construction is tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
  2. Install "LK" bead where substrate is kerfed to receive long flange of trim.
  3. Install "L" bead where edge trim can only be installed after gypsum board is installed.
  4. Install U-Type trim where edge is exposed, revealed, gasketed, or sealant-filled (including expansion joints).
- D. Install control joints at locations indicated, or if not indicated, at spacing and locations required by referenced gypsum board application and finish standard, and approved by the Architect for visual effect.

### 3.8 FINISH OF DRYWALL

- A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
- B. Prefill open joints and rounded or beveled edges, if any, using setting-type joint compound.
- C. Apply joint tapes at joints between gypsum boards, except where trim accessories are indicated.
- D. Finish interior gypsum wallboard by applying the following joint compounds in 3 coats (not including

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prefill of openings in base), and sand between coats and after last coat:

1. Embedding and First Coat: Ready-mix drying-type all-purpose or taping compound.
  2. Fill (Second) Coat: Ready-mix drying-type all-purpose or topping compound.
  3. Finish (Third) Coat: Ready-mix drying-type all -purpose or topping compound.
- E. Water-Resistant Backing Board Base for Ceramic Tile: Finish joints between water-resistant backing board with tape and setting-type joint compound to comply with gypsum board manufacturer's recommendations and installation standards referenced in Division 9 Section "Tile.
- F. Partial finishing: Omit third coat and sanding on concealed drywall construction which is indicated for drywall finishing or which requires finishing to achieve fire-resistance rating, sound rating or to act as air or smoke barrier.

3.9 PROTECTION

- A. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall construction being without damage or deterioration at time of Substantial Completion.

END OF SECTION

**SECTION 09 30 13  
CERAMIC TILE**

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
1. Glazed tile.
  2. Natural Floor Tile – floors and walls.
  3. Waterproof membrane for **thin-set** tile installations.
  4. Crack-suppression membrane for thin-set tile installations.
  5. Cementitious backer units installed as part of tile installations.
  6. Tile edging, corner, transition strips.

1.3 DEFINITIONS

- A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.
- B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).
- C. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.
- D. Samples for Verification:
1. Full-size units of each type and composition of tile and for each color and finish required.
  2. Assembled samples with grouted joints for each type and composition of tile and for each color and finish required, at least **12 inches (300 mm)** square and mounted on rigid panel. Use grout of type and in color or colors approved for completed work.
  3. Full-size units of each type of trim and accessory[ **for each color and finish required**].



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4. Stone thresholds in **6-inch (150-mm)** lengths.
5. Metal edge strips in **6-inch (150-mm)** lengths.
  
- E. Product Certificates: For each type of product, signed by product manufacturer.
- F. Qualification Data: For Installer.
- G. Material Test Reports: For each tile-setting and -grouting product[ **and special-purpose tile**].

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store [**liquid latexes**] [**and**] [**emulsion adhesives**] in unopened containers and protected from freezing.
- E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

**1.7 EXTRA MATERIALS**

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Tile and Trim Units: **Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated**

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
  1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.

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2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
5. Basis-of-Design Product: The design for each tile type is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified.

**2.2 PRODUCTS, GENERAL**

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
  1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
  2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.
- C. Colors, Textures, and Patterns: Architect to select from Manufacturer's full range of colors for any series specified. Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

1. **BATHROOMS – Floor and wall Tile to be Daltile "Portfolio" 12 x 24" laid at 1/3 third points with toothpick joints. ALLOW TWO COLORS Colors to be selected from full range or sizes/colors.**

2. **Sleuter Strips –**

**A. Provide Sleuter DILEX-EHK stainless steel cove at all inside corners (wall to wall, floor to wall, etc.)**

**B. Provide Sleuter-DECO at all wall transitions between base and wall tile, accent tile and wall tile, and at any other tile color or type change location.**

**C. Provide Sleuter-DECO at transition between tile and marble threshold.**

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- D. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
  - 1. Where tile is indicated for installation **in wet areas**, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.
- F. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

2.3 **TILE PRODUCTS**

- A. Manufacturers:
  - 1. American Marazzi Tile, Inc.
  - 2. American Olean; Div. of Dal-Tile International Corp.
  - 3. Buchtal Corporation USA.
  - 4. Cerim-Floor Gres Ceramiche.
  - 5. Crossville Ceramics Company, L.P.
  - 6. Daltile; Div. of Dal-Tile International Inc.
  - 7. Florida Tile Industries, Inc.
  - 8. GranitiFiandre.
  - 9. Interceramic.
  - 10. KPT, Inc.
  - 11. Laufen USA.
  - 12. Lone Star Ceramics Company.
  - 13. Metropolitan Ceramics.
  - 14. Monarch Tile, Inc.
  - 15. Porcelanite, Inc.
  - 16. Quarry Tile Company.
  - 17. Seneca Tiles, Inc.
  - 18. Summitville Tiles, Inc.
  - 19. United States Ceramic Tile Company.
  - 20. Winburn Tile Manufacturing Company.
- B. Accessories for Glazed Wall Tile: Provide vitreous china accessories of type and size indicated, in color and finish to match adjoining wall tile, and intended for installing by same method as adjoining wall tile.

2.4 **THRESHOLDS**

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- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
  - 1. Bevel edges at 1:2 slope, aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to **1/2 inch (12.7 mm)** or less, and finish bevel to match face of threshold.
- B. Marble Thresholds: **Provide MSI “Engineered Grey” 6” wide polished double beveled thresholds at all doors adjacent to tile floors.** ASTM C 503 with a minimum abrasion resistance of [10] [12] per ASTM C 1353 or ASTM C 241 and with honed finish.
  - 1. Description: Uniform, fine- to medium-grained white stone with gray veining.

**2.5 SETTING AND GROUTING MATERIALS**

- A. Manufacturers:
  - 1. Atlas Minerals & Chemicals, Inc.
  - 2. Boiardi Products Corporation.
  - 3. Bonsal, W. R., Company.
  - 4. Bostik.
  - 5. C-Cure.
  - 6. Custom Building Products.
  - 7. DAP, Inc.
  - 8. Jamo Inc.
  - 9. LATICRETE International Inc.
  - 10. MAPEI Corporation.
  - 11. Southern Grouts & Mortars, Inc.
  - 12. Summitville Tiles, Inc.
  - 13. TEC Specialty Products Inc.
- B. Dry-Set Portland Cement Mortar (Thin Set): ANSI A118.1.
  - 1. For wall applications, provide nonsagging mortar that complies with Paragraph C-4.6.1 in addition to the other requirements in ANSI A118.1.
- C. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:
  - 1. Prepackaged dry-mortar mix containing dry, redispersible, ethylene vinyl acetate additive to which only water must be added at Project site.
  - 2. Prepackaged dry-mortar mix combined with **[acrylic resin] [or] [styrene-butadiene-rubber]** liquid-latex additive.
    - a. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.

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2.7 CEMENTITIOUS BACKER UNITS

- A. Provide cementitious backer units complying with ANSI A118.9 in maximum lengths available to minimize end-to-end butt joints.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

2.9 Transition strips at edges, corners, etc., provide Schluter, or equal, products at conditions listed:

1. At all tile floor to tile wall intersections, provide Schluter DILEX-AHK trim piece
2. At all inside corners, provide Schluter DILEX-EHK
3. At all outside tile corners provide Schluter- QUADDEC, or equal trim piece.
4. At top termination of tile, provide Schluter RONDEC-DB trim.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
  2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
  3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

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- A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- B. Provide concrete substrates for tile floors installed with [**adhesives**] [**or**] [**thin-set mortar**] that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
  - 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
  - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- C. Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- D. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

**3.3 INSTALLATION, GENERAL**

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

**3.4 [WATERPROOFING] [AND] [CRACK-SUPPRESSION MEMBRANE] INSTALLATION**

- A. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written instructions to produce waterproof membrane of uniform thickness bonded securely to substrate.
- B. Install crack-suppression membrane to comply with manufacturer's written instructions to produce membrane of uniform thickness bonded securely to substrate.
- C. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

**3.5 FLOOR TILE INSTALLATION**

- A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.

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1. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
  - a. Exterior tile floors.
  - b. Tile floors in wet areas.
  - c. Tile swimming pool decks.
  - d. Tile floors in laundries.
  - e. Tile floors composed of tiles **8 by 8 inches (200 by 200 mm)** or larger.
  - f. Tile floors composed of rib-backed tiles.
  
- B. Joint Widths: Install tile on floors with the following joint widths:
  1. Ceramic Mosaic Tile: **1/16 inch (1.6 mm)**.
  2. Quarry Tile: [**1/4 inch (6.35 mm)**] [**3/8 inch (9.5 mm)**].
  3. Paver Tile: [**1/4 inch (6.35 mm)**] [**3/8 inch (9.5 mm)**].
  
- C. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile, unless otherwise indicated.
  1. Set thresholds in latex-portland cement mortar for locations where mortar bed would otherwise be exposed above adjacent nontile floor finish.
  
- D. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.
  
- E. Grout Sealer: Apply grout sealer to[ **cementitious**] grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

**3.6 WALL TILE INSTALLATION**

- A. Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
  
- B. Install metal lath and scratch coat for walls to comply with ANSI A108.1A, Section 4.1.
  
- C. Joint Widths: Install tile on walls with the following joint widths:
  1. Ceramic Mosaic Tile: **1/16 inch (1.6 mm)**.
  2. Glazed Wall Tile: **1/16 inch (1.6 mm)**.
  3. Quarry Tile: [**1/4 inch (6.35 mm)**] [**3/8 inch (9.5 mm)**].

**SECTION 09 30 13  
CERAMIC TILE**

**CARTER WATKINS ASSOCIATES ARCHITECTS, INC.**  
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3.7 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  - 1. Remove [epoxy] [and] [latex-portland cement] grout residue from tile as soon as possible.
  - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
  - 3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.
- B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09310



SECTION 09 51 23  
ACOUSTICAL PANEL CEILINGS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes acoustical panel ceilings installed with exposed suspension systems.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
1. Product data for each type of product specified.
  2. Coordination drawings for reflected ceiling plans drawn accurately to scale and coordinating penetrations and ceiling-mounted items. Show the following:
    - a. Ceiling suspension members
    - b. Method of attaching hangers to building structure
    - c. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinkler heads; and special moldings at walls, column penetrations, and other junctures with adjoining construction.
    - d. Scale: 1/8 inch = 1'-0"
  3. Samples for verification purposes of each type of exposed finish required, prepared on samples of size indicated below and of same thickness and material indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.
    - a. 6-inch-square samples of each acoustical panel type, pattern, and color.
    - b. Set of 12-inch-long samples of exposed suspension system members, including moldings, for each color and system type required.
  4. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.

1.4 QUALITY ASSURANCE

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ACOUSTICAL PANEL CEILINGS

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- A. Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, and extent to those indicated for project.
- B. Fire-Performance Characteristics: Provide acoustical ceilings that are identical to those tested for the following fire-performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organizations.
  - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
    - a. Flame Spread: 25 or less
    - b. Smoke Developed: 50 or less
- C. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- D. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- E. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any).

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

**1.6 PROJECT CONDITIONS**

- A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

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ACOUSTICAL PANEL CEILINGS

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1.7 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with appropriate labels.
1. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 2.0 percent of amount installed.
  2. Exposed Suspension System Components: Furnish quantity of each exposed component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 ACOUSTICAL CEILING UNITS, GENERAL

- A. Standard for Acoustical Ceiling Units: Provide manufacturers' standard units of configuration indicated that comply with ASTM E 1264 classifications as designated by reference to types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
1. Mounting Method for Measuring NRC: Type E-400 (plenum mounting in which face of test specimen is 15-3/4 inches [400 mm] away from the test surface) per ASTM E 795.
- B. Colors and Patterns: Provide products to match appearance characteristics indicated under each product type.
1. For acoustical ceiling units whose appearance characteristics are indicated by reference to ASTM E 1264 designations for pattern and not by limiting to the naming of one or more products or manufacturers, provide Architect's selections from each named manufacturer's full range of standard products of type, color, pattern, and light reflectance indicated.

2.2 ACOUSTICAL PANELS

- A. ACT: USG 2' x 2' Frost Acoustical (not frost basic) panels with SLB edge with USG DX Grid, Class A, Color White.

2.3 METAL SUSPENSION SYSTEMS, GENERAL

- A. USG Centricitee DXT narrow Grid
- B. Finishes and Colors: Provide manufacturer's standard factory-applied finish for type of system indicated.
- C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
1. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application

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ACOUSTICAL PANEL CEILINGS

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indicated, fabricated from corrosion-resistance materials, with clips or other accessory devices for attachment of 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 per ASTM E 1190, conducted by a qualified testing laboratory.

- D. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
1. Gage: Provide wire sized so that stress at 3 times hanger design load (ASTM C 635, Table 1, Direct-Hung), will be less than yield stress of wire, but provide not less than 0.106-inch diameter (12 gage).
- E. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated.
1. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
  2. For narrow faced suspension systems, provide suspension system manufacturer's standard edge moldings that match width and configuration of exposed runners.

**2.4 MISCELLANEOUS MATERIALS**

- A. Acoustical Sealant: Resilient, non-staining, non-shrinking, non-hardening, non-skinning, non-drying, non-sag sealant intended for interior sealing of concealed construction joints and at all wall intersections
1. Products: Subject to compliance with requirements, provide one of the following:
    - a. BA-98; Pecora Corp.
    - b. Tremco Acoustical Sealant; Tremco

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

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ACOUSTICAL PANEL CEILINGS

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- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half-width units at borders, and comply with reflected ceiling plans.

**3.3 INSTALLATION**

- A. General: Install acoustical ceiling systems to comply with installation standard referenced below, per manufacturer's instructions and CISCA "Ceiling Systems Handbook".
1. Standard for Installation of Ceiling Suspension Systems: Comply with ASTM E 580.
- B. Arrange acoustical units and orient directionally patterned units in a manner shown by reflected ceiling plans.
1. Install tile with running pattern in one direction.
- C. Suspend ceiling hangers from building 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 structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter splaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with the location of hangers at spacing required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension member and hangers to support ceiling loads within performance limits established by referenced standards.
  3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  4. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.
- D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical units.
1. crew-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.

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ACOUSTICAL PANEL CEILINGS

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E. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

3.4 **CLEANING**

A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 65 19  
RESILIENT FLOORING

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

09 65 19-1

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**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications sections, apply to this Section.

**1.2 DESCRIPTION OF WORK**

- A. Extent of resilient flooring and accessories is shown on drawings and in schedules. Products will include 6" Rubber base; Luxury Vinyl Tile, and any other accessories/products.

**1.3 QUALITY ASSURANCE**

- A. Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives, sealants, and leveling compounds.
- B. Fire Test Performance: Provide resilient flooring which complies with the following fire test performance criteria as determined by an independent testing laboratory acceptable to authorities having jurisdiction.
1. Critical Radiant Flux (CRF): Not less than the following rating per ASTM E 648.
    - a. 0.45 watts per sq cm
  2. Flame Spread: Not more than 25 per ASTM E 84
  3. Smoke Developed: Not more than 450 per ASTM E 84
  4. Smoke Density: Not more than 450 per ASTM E 662
- C. Installer's Qualifications: Engage Installer who is certified in writing by resilient flooring manufacturer as qualified for installation of sheet vinyl employing heat welded seams.

**1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's technical data for each type of resilient flooring and accessory.
- B. Samples for Initial Selection Purposes: Submit manufacturer's standard color charts in form of actual sections of resilient flooring, including accessories, showing full range of colors and patterns available, for each type of resilient flooring required.
- C. Samples for Verification Purposes: Submit the following samples of each type, color and pattern of resilient flooring required, showing full-range of color and pattern variations.
1. Full-size tile samples
  2. 6" x 9" samples of sheet flooring
  3. 2-1/2" long samples of resilient flooring accessories
  4. Welding beads for sheet flooring
  5. Other materials as required
- D. Certification for Fire Test Performance: Submit certification from an independent testing laboratory acceptable to authorities having jurisdiction that resilient flooring complies with fire test performance requirements.
- E. Maintenance Instructions: Submit 2 copies of manufacturer's recommended maintenance practices for each type of resilient flooring and accessory required.

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RESILIENT FLOORING

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**1.5 PROJECT CONDITIONS**

- A. Maintain minimum temperature of 65 degrees F (18 deg C) in spaces to receive resilient flooring for at least 48 hours prior to installation, and for not less than 48 hours after installation. Store resilient flooring materials in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 55 deg F (13 deg C) in areas where work is completed.
- B. Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Do not install resilient flooring over concrete slabs until the latter have been cured and are sufficiently dry to achieve bond with adhesive as determined by resilient flooring manufacturer's recommended bond and moisture test.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS**

- A. Manufacturer: Subject to compliance with requirements, provide products of the following:
1. Manufacturers of Vinyl Luxury Tile:
    - a. Roppe Northern Timbers or equal vinyl wood plank flooring collections. Colors to be selected from full range of colors.
  2. Manufacturers of 6" Rubber Wall Base (base to be Roppe 700 series 6" (no toe base) or equal) :
    - a. Burke Flooring Products Div., Burke Industries, Inc.
    - b. Flexco Div., Textile Rubber Co.
    - c. Roppe Rubber Corp.
    - d. Azrock.

**2.2 RESILIENT FLOORING COLORS AND PATTERNS**

- A. Provide colors and patterns as indicated, or if not otherwise indicated, as selected by Architect from manufacturer's standards.

**2.3 LUXURY VINYL FLOOR TILE**

- A. Manufacturer: Roppe Corporation or equal
1. Description: Solid Vinyl Floor Tile meeting the requirements of ASTM F 1700.
  2. Resistance to Chemicals per ASTM F 925: Pass (List of chemicals provided by manufacturer on request)
  3. Light Stability per ASTM F 1515: Pass.(Delta E < 8.00)
  4. Abrasion resistance per ASTM D 3389: Excellent (<0.15 weight loss after 1,000 cycles using H-18 wheels with 500 gram load applied )
  5. Design and Color: As selected by Architect from manufacturer's standard designs and colors.
  6. Does do not contain any of the hazardous chemicals listed in California Proposition 65
  7. Collaborative for High Performance Schools 01350 Low-Emitting Material Criteria: Pass
- B. Roppe Solid Vinyl Floor Tile (or equal)



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RESILIENT FLOORING

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1. Northern Parallels Premium vinyl plank and type. Allow for FOUR SEPARATE FLOORING SELECTIONS selected from all available pattern options (stone, desert, chevron, mini wood travertine, or coastal) and from all available colors in each pattern group.

- a. Classification: ASTM F 1700, Class III, Type A.
- b. Thickness: 28 mil
- c. Wear Layer Thickness: exceeds ASTM F 1700, Commercial Use.

**2.4 RUBBER STAIR TREADS, RISERS, AND LANDINGS –**

1. Provide Roppe or equal Raised design rubber tread, riser and landings. Color and pattern to be selected from complete series of patterns and colors available in each series. Provide for accent strip or tread at the top of landings and at bottom treads.

**2.5 ACCESSORIES**

A. Rubber Wall Base: Provide Roppe or equal Contours profiled base with matching end stops and preformed or molded corner units, and as follows:

1. Height: 6"
2. Finish: Matte

B. Adhesives (Cements): Waterproof, stabilized type as recommended by flooring manufacturer to suit material and substrate conditions.

C. Concrete Slab Primer: Non-staining type as recommended by flooring manufacturer.

D. Leveling and Patching Compounds: Latex type as recommended by flooring manufacturer.

**PART 3 - EXECUTION**

**3.1 INSPECTION**

A. Require Installer to inspect subfloor surfaces to determine that they are satisfactory. A satisfactory subfloor surface is defined as one that is smooth and free from cracks, holes, ridges, coatings preventing adhesive bond, and other defects impairing performance or appearance.

B. Perform bond and moisture tests on concrete subfloors to determine if surfaces are sufficiently cured and dry as well as to ascertain presence of curing compounds.

C. Do not allow resilient flooring work to proceed until subfloor surfaces are satisfactory.

**3.2 PREPARATION**

A. Prepare subfloor surfaces as follows:

1. Use leveling and patching compounds as recommended by resilient flooring manufacturer for filling small cracks, holes and depressions in subfloors.
2. Remove coatings from subfloor surfaces that would prevent adhesive bond, including curing compounds incompatible with resilient flooring adhesives, paint, oils, waxes and sealers.

B. Broom clean or vacuum surfaces to be covered, and inspect subfloor.

C. Apply concrete slab primer, if recommended by flooring manufacturer, prior to application of adhesive. Apply in compliance with manufacturer's directions.

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RESILIENT FLOORING

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**3.3 INSTALLATION, GENERAL**

- A. Where movable partitions are shown, install resilient flooring before partitions are erected.
- B. Install resilient flooring using method indicated in strict compliance with manufacturer's printed instructions. Extend resilient flooring into toe spaces, door reveals, and into closets and similar openings.
- C. Scribe, cut, and fit resilient flooring to permanent fixtures, built-in furniture and cabinets, pipes, outlets and permanent columns, walls and partitions.
- D. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other non-permanent marking device.
- E. Install resilient flooring on covers for telephone and electrical ducts, and other such items occurring within finished floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed in these covers. Tightly cement edges to perimeter of floor around covers and to covers.
- F. Tightly cement resilient flooring to subbase without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand roll resilient flooring at perimeter of each covered area to assure adhesion.

**3.4 INSTALLATION OF TILE FLOORS**

- A. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise shown.
- B. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged if so numbered. Cut tile neatly around all fixtures. Broken, cracked, chipped or deformed tile are not acceptable.
  - 1. Lay tile with grain running in alternating directions.
- C. Adhere tile flooring to substrates using full spread of adhesive applied in compliance with flooring manufacturer's directions.

**3.5 INSTALLATION OF SHEET FLOORING**

- A. Lay sheet flooring to provide as few seams as possible with economical use of materials. Match edges for color shading and pattern at seams in compliance with manufacturer's recommendations.
- B. Adhere sheet flooring to substrates using method approved by flooring manufacturer for type of sheet flooring and substrates condition indicated:
  - 1. Use conventional full spread adhesive method for filled vinyl without backing.
- C. Prepare seams in vinyl sheet flooring with manufacturer's special routing tool and heat weld with vinyl thread in accordance with manufacturer's instructions.
- D. Provide integral flash cove base where shown on drawings, including cove support strip and metal top edge strip. Construct coved base in accordance with manufacturer's instructions.

**3.6 INSTALLATION OF ACCESSORIES**

- A. Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed corner units, or fabricated from base materials with mitered or coped inside corners. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.
- B. Place resilient edge strips tightly butted to flooring and secure with adhesive. Install edging strips at edges of flooring which would otherwise be exposed.

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RESILIENT FLOORING

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C. Apply resilient accessories at stair as indicated and in strict accordance with manufacturer's installation instructions.

**3.7 CLEANING AND PROTECTION**

A. Perform following operations immediately upon completion of resilient flooring:

1. Sweep or vacuum floor thoroughly
2. Do not wash floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well-sealed in adhesive
3. Damp-mop floor being careful to remove black marks and excessive soil
4. Remove any excess adhesive or other surface blemishes, using appropriate cleaner recommended by resilient flooring manufacturer.

B. Protect flooring against damage during construction period to comply with resilient flooring manufacturer's directions.

1. Protect resilient flooring against damage from rolling loads for initial period following installation by covering with plywood or hardboard. Use dollies to move stationary equipment or furnishings across floors.
2. Cover resilient flooring with undyed, untreated building paper until inspection for substantial completion.

C. Clean resilient flooring not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Clean resilient flooring by method recommended by resilient flooring manufacturer.

**3.8 EXTRA STOCK**

A. Deliver stock of maintenance materials to Owner. Furnish maintenance materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.

1. Tile Flooring: Furnish not less than one box for each 50 boxes or fraction thereof, for each type, color, pattern, and size installed.
2. Sheet Flooring: Furnish not less than 5 linear yards for each type, color and pattern installed.

**END OF SECTION**

SECTION 09 91 00

PAINTING

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this section.

1.2 SUMMARY

- A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces. **NOTE: ALL EXISTING WALLS (except offices) AND ANY WOOD TRIM TO BE PAINTED AS WELL.**
1. Surface preparation, priming, and finish coats specified in this section are in addition to shop priming and surface treatment specified under other sections.
- B. Paint exposed surfaces whether or not colors are designated in "schedules," except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color of finish is not designated, the Architect will select from standard colors or finishes available.
- C. Painting is not required on pre-finished items, finished metal surfaces, concealed surfaces, operating parts, and labels.
1. Labels: Do not paint over Underwriter's Laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. **ALL INTERIOR PAINT TO BE PPG COPPER ARMOR PAINT, OR EQUAL.** PPG Copper Armor is an innovative interior coating that uses Corning® Guardiant® copper technology to continuously kill viruses and bacteria on the painted surface within 2 hours of exposure for up to 5 years. This premium paint provides an extra layer of protection for commercial spaces and homes alike. Copper Armor leverages copper, a naturally-occurring element, to help keep interior surfaces clean from disease-causing agents including Staph, MRSA, E Coli and Sars CoV-2.

1.3 DEFINITIONS

- A. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.4 SUBMITTALS

- A. Product Data: Manufacturer's technical information, label analysis, and application instructions for

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### PAINTING

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each material proposed for use.

1. List each material and cross-reference the specific coating and finish system and application. Identify each material by the manufacturer's catalog number and general classification.
- B. Samples for verification purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate. Define each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.
  1. Provide a list of material and application for each coat of each sample. Label each sample as to location and application.
  2. Submit samples on the following substrates for the Architect's review of color and texture only:
    - a. Interior Walls
    - b. Interior Ceilings.

#### 1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
- B. Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
  1. Notify the Architect of problems anticipated using the materials specified.
- C. Material Quality: Provide the manufacturer's best quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
  1. Product name or title of material
  2. Product description (generic classification or binder type)
  3. Federal Specification number, if applicable
  4. Manufacturer's stock number and date of manufacture
  5. Contents by volume, for pigment and vehicle constituents
  6. Thinning instructions

## SECTION 09 91 00

### PAINTING

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7. Application instructions
8. Color name and number
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
  1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

#### 1.7 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).
- C. Do not apply paint in snow, rain, fog, or mist, when the relative humidity exceeds 85 percent, at temperatures less than 5 deg F (3 deg C) above the dew point, or to damp or wet surfaces.
  1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of the following:
  1. Paints: Apply one coat primer and two coats finish to all wall surfaces.

Use top quality of one of the following:

    - a. Benjamin Moore Company used as basis of color
    - b. Sherwin Williams
    - c. Devoe

#### 2.2 PRIMERS

- A. Ceilings and Walls to receive epoxy primer and two coats epoxy paint finish.
- B. Exterior materials to receive two coats of latex primer then two coats of latex paint.

#### 2.3 INTERIOR FINISH PAINT MATERIAL

- A. Walls and ceilings to be latex-acrylic, semi-gloss finish.

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- B. Doors and Trim to be latex-acrylic, gloss finish.
- C. Epoxy paint to be used in all Bathrooms.

2.4 EXTERIOR FINISH PAINT MATERIAL

- A. 100 Acrylic Latex Semi-Gloss.
  - 1. Duron Ultra Deluxe Exterior.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected.
  - 1. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

3.2 PREPARATION

- A. General Procedures: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.
  - 1. Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- B. Surface Preparation: Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.
  - 1. Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing of problems anticipated with using the specified finish-coat material with substrates primed by others.
  - 2. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
    - a. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand

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smooth when dried.

- b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
      - c. When transparent finish is required, backprime with spar varnish.
      - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
  3. Ferrous Metals: Clean nongalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council.
    - a. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.
- C. Materials Preparation: Carefully mix and prepare paint materials in accordance with manufacturer's directions.
  1. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.
  2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
  3. Use only thinners approved by the paint manufacturer, and only within recommended limits.

### 3.3 APPLICATIONS

- A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  1. Paint colors, surface treatments, and finishes are indicated in "schedules".
  2. Provide finish coats that are compatible with primers used.
  3. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even smooth surface in accordance with the manufacturer's directions.



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4. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
  5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas as required to maintain the system integrity and provide desired protection.
  6. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.
  7. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.
  8. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  9. Sand lightly between each succeeding enamel or varnish coat.
  10. Omit primer on metal surfaces that have been shop-primed and touch up painted.
- C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure and where application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- D. Minimum Coating Thickness: Apply materials at not less than the manufacturer's recommended spreading rate. Provide a total dry film thickness of the entire system as recommended by the manufacturer.
- E. Prime Coats: Before application of finish coats, apply a prime coat of material as recommended by the manufacturer to material that is required to be painted or finished and has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.
- 3.4 **CLEANING**
- A. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint

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materials from the site.

- B. Upon completion of painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping, using care not to scratch or damage adjacent finished surfaces.

3.5 **PROTECTION**

- A. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- B. Provide "wet paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.
  - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION

SECTION 10 14 36

SIGNAGE

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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SECTION 10 14 36  
SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Plastic interior panel signs.
  - 1. Room Identification.
  - 2. Restroom.

\*\*\*\*\*NOTE: ALL EXISTING AND NEW SPACES ARE TO RECEIVE SIGNAGE.

1.2 RELATED SECTIONS

- A. Section 06 20 00 - Finish Carpentry.
- B. Section 10 13 13 - Electronic Directories.
- C. Section 10 14 16 - Plaques.

1.3 REFERENCES

- A. ANSI 117.1 - For Buildings and Facilities.
- B. ASTM International (ASTM):
  - 1. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
  - 2. ASTM D 1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
  - 3. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 4. ASTM E 2072-04 - Standard Specification for Photoluminescent (Phosphorescent) Safety Marketing.
  - 5. ASTM E2073-02 - Standard Test Method for Photopic Luminance of Photo Luminescent (Phosphorescent) Markings.
- C. Underwriters Laboratories (UL):
  - 1. UL 94 - Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
  - 2. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials.

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### SIGNAGE

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#### 1.4 PERFORMANCE REQUIREMENTS

- A. Provide photopolymer signage that conforms to the requirements of all regulatory agencies holding jurisdiction.
- B. Provide glow in the dark, photo luminescent material that complies with applicable provisions of ASTM E 2073-02 and DIN 67510. Photo luminescent material must have up to eight hours of luminance.
- C. Requirements:
  - 1. Comply with all applicable provisions of the 2010 ADA Standard for Accessible Design.
  - 2. Character Proportion: Letters and numbers on signs must have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10.
  - 3. Color Contrast: Characters and symbols must contrast with their background - either light characters on a dark background or dark characters on a light background.
  - 4. Raised Characters or Symbols: Letters and numbers on signs must be raised 1/32 in (0.8 mm) minimum and be sans serif characters. Raised characters or symbols must be at least 5/8 in (16 mm) high but no higher than 2 in (50 mm). Symbols or pictograms on signs must be raised 1/32 in (0.8 mm) minimum.
  - 5. Symbols of Accessibility: Accessible facilities required to be identified must use the international symbol of accessibility.
  - 6. Braille: Grade II with accompanying text.
- D. Fire Performance Characteristics:
  - 1. Provide photopolymer signage with surface burning characteristics that consist of a flame spread of 75 and a smoke development of 120 when tested in accordance to UL 723 (ASTM E 84).
  - 2. Self-Extinguishing: Provide photopolymer signage with a CC1 classification for .060 in thick material when tested in accordance with the procedures in ASTM D 635, Standard Test Method for Rate of Burning and/or Extent and Time of Burning Plastics in a Horizontal Position.
  - 3. Vertical Burn: Provide photopolymer material that is classified as 94V-2 for material .118 in thick or greater and 94HB for material .118 in thick or less when tested in accordance with UL 94, Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
  - 4. Self-Ignition Temperature: Provide photopolymer material that has a self-ignition temperature of 800 degrees F (427 degrees C) when tested in accordance with ASTM D 1929.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including

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### SIGNAGE

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1. Preparation instructions and recommendations.
  2. Storage and handling requirements and recommendations.
  3. Installation methods.
- C. Shop Drawings: Detail drawings showing sizes, lettering and graphics, construction details of each type of sign and mounting details with appropriate fasteners for specific project substrates.
- D. Manufacturer's Installation Instructions: Printed installation instructions for each signage system.
- E. Message List: Signage report indicating signage location, text and sign type.
- F. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and available pictograms, characters, and Braille indications.
- G. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and typical pictograms, characters, and Braille indications.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum two years documented experience in work of this Section.
- B. Installer Qualifications: Minimum two years documented experience in work of this Section.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Furnish signs designated by Architect.
  2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  3. Refinish mock-up area as required to produce acceptable work.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in unopened factory packaging.
- B. Inspect materials at delivery to verify there are no defects or damage.
- C. Store products in manufacturer's original packaging until ready for installation in climate controlled location away from direct sunlight.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials in accordance with requirements of local authorities having jurisdiction.

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### SIGNAGE

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#### 1.8 PROJECT CONDITIONS

- A. Install products in an interior climate controlled environment.
- B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### PART 2 PRODUCTS

##### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Nova Polymers, Inc., which is located at: 8 Evans St. Suite 201; Fairfield, NJ 07004; Toll Free Tel: 888-484-NOVA (6682); Email:[request info \(info@novapolymers.com\)](mailto:request_info@novapolymers.com); Web:[www.novapolymers.com](http://www.novapolymers.com)
  - 1. Acceptable Fabricator: Ability Plastics, 8721 Industrial Drive, Justice, Illinois 60458. Phone: (800) 323-2722. Email:[sales@abilityplastics.com](mailto:sales@abilityplastics.com) Web:[www.abilityplastics.com](http://www.abilityplastics.com).
  - 2. Acceptable Fabricator: Acorn Sign Graphics, PO Box 11664, Richmond, Virginia 23230. Phone: (804) 726-6999. Email:[info@acornsign.com](mailto:info@acornsign.com). Web:[www.acornsign.com](http://www.acornsign.com).
  - 3. Acceptable Fabricator: Acumen Visual Group, 30 Riviera Drive Markham ON Canada L3R 5M1 Phone: +1 905-947-0770 Web:[www.ideasbuilt.ca](http://www.ideasbuilt.ca).
  - 4. Acceptable Fabricator: AGS, 302 Commerce Drive, Exton, PA 19341. Phone: (610) 363-8150. Email:[info@agsinfo.com](mailto:info@agsinfo.com). Web:[www.agsinfo.com](http://www.agsinfo.com).
  - 5. Acceptable Fabricator: Advanced Signing LLC, 4 Industrial Park Road, Medway, MA 02053. Phone: (508) 533-9000 ext. 3026. Email:[gpiper@advancedsigning.com](mailto:gpiper@advancedsigning.com). Web:[www.advancedsigning.com](http://www.advancedsigning.com).
  - 6. Acceptable Fabricator: APCO Graphics, Inc., 388 Grant St. SE, Atlanta, GA 30312. Phone (800) 215-4039. Web:[www.apcographics.com](http://www.apcographics.com)
  - 7. Acceptable Fabricator: ASI CT - East Berlin, CT, 100 Clark Dr., East Berlin, CT. Phone: (860) 828-3331. Web:[www.asisignage.com/ASIHartford/tabid/211/Default.aspx](http://www.asisignage.com/ASIHartford/tabid/211/Default.aspx).
  - 8. Acceptable Fabricator: ASI, Dallas - Dallas, TX, 8181 Jetstar Drive, Suite 110, Irving, TX 75063. Phone:( 972) 915-3800. Web:[www.asisignage.com/ASIDallas/tabid/243/Default.aspx](http://www.asisignage.com/ASIDallas/tabid/243/Default.aspx).
  - 9. Acceptable Fabricator: ASI, Iowa - Grinnell, IA, 1219 Zimmerman Dr., Grinnell, IA 50112. Phone: (641) 236-6616. Web:[www.asisignage.com/ASIIowa/tabid/239/Default.aspx](http://www.asisignage.com/ASIIowa/tabid/239/Default.aspx).
  - 10. Acceptable Fabricator: ASI, New Orleans, 1101 24th St., Kenner, LA 70062. Phone: (504) 704-1000. Web:[www.asisignage.com/ASINewOrleans/tabid/236/Default.aspx](http://www.asisignage.com/ASINewOrleans/tabid/236/Default.aspx).
  - 11. Acceptable Fabricator: Bell Company, 106 Morrow Ave., Trussville, AL 35173-0092. Phone: (800) 828-3564. Email:[sales@bellcoinc.com](mailto:sales@bellcoinc.com). Web:[www.braillebybell.com](http://www.braillebybell.com).
  - 12. Acceptable Fabricator: Boyd Sign Systems, 3901 S Kalamath St, Englewood, CO 80110. Phone: (800) 333-3190. Email:[signs@boydsignsystems.com](mailto:signs@boydsignsystems.com). Web:[www.boydsignsystems.com](http://www.boydsignsystems.com).

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13. Acceptable Fabricator: Cab Signs, 38 Livonia Ave, Brooklyn, NY 11212. Phone: (800) 394-1690. Email:[sales@cab-signs.com](mailto:sales@cab-signs.com). Web:[www.cab-signs.com](http://www.cab-signs.com).
14. Acceptable Fabricator: Cadwell Signs, 4 Kuniholm Drive, Holliston, MA 01746. Phone: (508) 429-3100. Web:[www.cadwellsigns.com](http://www.cadwellsigns.com).
15. Acceptable Fabricator: Creative Sign Designs, 12801 Commodity Place, Tampa, FL 33626 Phone: (800) 804-4809. Email:[sales@creativesigndesigns.com](mailto:sales@creativesigndesigns.com). Web:[www.creativesigndesigns.com](http://www.creativesigndesigns.com).
16. Acceptable Fabricator: Dixie Graphics, 636 Grassmere Park, Nashville TN 37211 Phone: 615-832-7000 Email:[info@dixiegraphics.com](mailto:info@dixiegraphics.com). Web:[www.dixiegraphics.com](http://www.dixiegraphics.com).
17. Acceptable Fabricator: Eye Candy Signs, 2705 Agricola St, Halifax Nova Scotia, Canada B3k 4C7. Phone: (902) 429-8281. Email:[contact@eyecandysigns.ca](mailto:contact@eyecandysigns.ca). Web:[www.eyecandysigns.ca](http://www.eyecandysigns.ca).
18. Acceptable Fabricator: Graphic Components, 3125 Spring Garden St, Greensboro, NC 27407. Phone: (336) 542-2128. Email:[vince@graphiccomponents.com](mailto:vince@graphiccomponents.com). Web:[www.graphiccomponents.com](http://www.graphiccomponents.com).
19. Acceptable Fabricator: GraphTec, Inc., 8411 Rannie Road, Houston, TX 77080. Phone: (713) 690-9999. Email:[blake@graphtecinc.com](mailto:blake@graphtecinc.com). Web:[www.graphtecinc.com](http://www.graphtecinc.com).
20. Acceptable Fabricator: InPro Corporation, S80 W18766 Apollo Drive, Muskego, WI 53150. Phone: (800) 222-5556. Email:[mbudnik@inprocorp.com](mailto:mbudnik@inprocorp.com). Web:[www.inprocorp.com](http://www.inprocorp.com).
21. Acceptable Fabricator: JRT Industries, 36 Tanderra Drive, Sharon, QLD 4670 Australia. Phone: (07) 41577003. Email:[info@jrtindustries.com.au](mailto:info@jrtindustries.com.au). Web:[www.jrtindustries.com.au](http://www.jrtindustries.com.au).
22. Acceptable Fabricator: Kroy Sign Systems, 7575 E Redfield Rd, Suite 113, Scottsdale, AZ 85260. Phone: (800) 950-5769. Email:[signs@kroysignsystems.com](mailto:signs@kroysignsystems.com). Web:[www.kroysignsystems.com](http://www.kroysignsystems.com).
23. Acceptable Fabricator: The Look Company Middle East, 125 Al Waab Street, Doha, Qatar. Phone: +974 4447 5865 Email:[sales@thelookcompany.com](mailto:sales@thelookcompany.com). Web:[www.thelookcompany.com](http://www.thelookcompany.com).
24. Acceptable Fabricator: Marvel Sign and Display, Inc., 99 Rodinea Road, Unit 1, Vaughan, Ontario L6A 1R3, Canada. Phone: (905) 856-6920 Email:[alan@marvelsigns.ca](mailto:alan@marvelsigns.ca). Web:[www.marvelsigns.ca](http://www.marvelsigns.ca).
25. Acceptable Fabricator: Neiman & Company, 6842 Valjean Ave., Van Nuys, CA 91406. Phone: (818) 781-8600. Email:[signs@neimanandco.com](mailto:signs@neimanandco.com). Web:[www.neimanandcompany.com](http://www.neimanandcompany.com).
26. Acceptable Fabricator: Nova Polymers, 15348 U.S. Rt. 127 EW, Bryan, OH 43506. Phone: (888) 484-6682. Email:[info@novapolymers.com](mailto:info@novapolymers.com). Web:[www.novapolymers.com](http://www.novapolymers.com).
27. Acceptable Fabricator: Park Place Sign Systems, Inc., 2019 30th Street, Hannibal, MO 63401. Phone: (573) 221-1360. Email:[sales@parkplacesign.com](mailto:sales@parkplacesign.com). Web:[www.parkplacesign.com](http://www.parkplacesign.com).
28. Acceptable Fabricator: Poblocki Sign Company LLC, 922 S 70th St., Milwaukee, WI 53214. Phone: (414) 453-4010. Web:[www.poblocki.com](http://www.poblocki.com)
29. Acceptable Fabricator: Sign Pro, 60 Westfield Dr, Plantsville, CT 96479. Phone: (860)

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- 229-1812. Email:[pete@signpro-usa.com](mailto:pete@signpro-usa.com). Web:[www.signpro-usa.com](http://www.signpro-usa.com).
30. Acceptable Fabricator: Spring Moon Signs, 105 Venetian Blvd, St. Augustine, FL 32095. Phone: (888) 526-6205. Email:[smsd1969@gmail.com](mailto:smsd1969@gmail.com). Web:[www.springmoonsigns.com](http://www.springmoonsigns.com).
31. Acceptable Fabricator: Tube Art Group, 11715 SE 5th Street, Bellevue, WA 98005. Phone: (206) 223-1122 Email:[mwoods@tubeart.com](mailto:mwoods@tubeart.com). Web:[www.tubeart.com](http://www.tubeart.com).
32. Acceptable Fabricator: Welch Signs, 7 Lincoln Ave., Scarborough, ME 04074. Phone: (800) 635-3506. Web:[www.welchusa.com](http://www.welchusa.com).
33. Acceptable Fabricator: WSI Sign System Ltd. & KING Architectural Products, 31 Simpson Road, Bolton - Ontario L7E 2R6. Phone: (905) 857-2804. Web:[www.king-ap.com](http://www.king-ap.com).

- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

#### 2.2 SIGNAGE - GENERAL

- A. It is the intent of these specifications to establish a sign standard for the Owner including but not limited to, wall-mounted directional signs, primary room identification, restrooms, conference rooms and all code compliant Braille signage. All rooms, stairs, restrooms, etc. to have signage. Coordinate names and numbers with Architect.
- B. Comply with all applicable provisions of the 2010 ADA Standard for Accessible Design codes that apply to the State and Local jurisdiction of the project.
- C. If required text and graphics are not indicated in specification or on drawings, obtain Owner's instructions as to text and graphics prior to preparation of shop drawings.
- D. Typography: See Drawings. Copy shall be a clean and accurate reproduction of typeface(s) specified. Upper and lower case and all caps as indicated in Sign Type drawings and Signage Schedule. Letter spacing to be set by manufacturer.
- E. Arrows, symbols and pictograms will be provided in style, sizes, colors and spacing as indicated in drawings for each sign system.
- F. Braille:
1. Grade 1 Braille.
- G. Design:
1. Novacryl PT-119 (Sioux Center Community Hospital example on website). Provide Room name and braille, Room number and braille, interchangeable personnel title/name slot, wood accent and decorative accent vertical strip. Provide matching, coordinating signage, with room graphic for rooms such as restrooms, stairs, etc.



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### SIGNAGE

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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#### 2.3 INTERIOR SIGNAGE

- A. Panel Material: Novacryl PT Series Photopolymer
1. Composition: 0.032 inch (0.8 mm) thick moisture resistant, non-glare interior nylon photopolymer on ultraviolet resistant clear PETG sign base, single piece construction. Laminated photopolymers, added-on characters, and engraved characters are not acceptable.
  2. Sustainable Certification: Minimum 40 percent pre-consumer recycled content.
  3. Base thickness: 0.060 inch (1.5 mm) Non-glare PETG. \*\* NOTE TO SPECIFIER \*\* Insert color. Delete color provision not required.
  4. Type and Color: To be selected from manufacturer's full color range by Architect.
  5. Size: \_10" x 14" minimum\_\_\_\_
  6. Surface burning characteristics: Flame spread/smoke developed rating less than 75/120, tested to ASTM E 84 and UL 723.
  7. Rate of burning: Tested to ASTM D 635 at nominal 0.060 inch (1.5 mm) thickness with resulting Classification CC1.
  8. Vertical burning: Tested to UL 94, classified as 94V-2 in thickness of 0.118 inch (3.0 mm) or greater and 94HB in thicknesses less than 0.118 inch (3.0 mm).
  9. Self-ignition temperature: 800 degrees F (427 degrees C), tested to ASTM D 1929.

#### 2.4 ACCESSORIES

- A. Adhesive:

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1. Type recommended by sign manufacturer.
  2. Maximum volatile organic compound (VOC) content: 70 grams per liter.
- B. Tape: Double sided, waterproof, pressure sensitive.
- C. Fasteners: Chrome plated screws.
- D. Fasteners: Brass screws.
- E. Fasteners: Stainless steel screws.

#### 2.5 FABRICATION

- A. Fabricate panel material in accordance with manufacturer's instructions and approved shop drawings.
- B. Fabricate signs by photo polymer process using film negatives to produce characters and graphics in contrasting color, raised. Refer to Signage Schedule.
- C. Characters:
1. Height: Refer to Signage Schedule.
  2. Style: Refer to Signage Schedule.
  3. Width to height ratio: Refer to Signage Schedule.
  4. Stroke width to height ratio: Refer to Signage Schedule.
- D. Pictograms: Refer to Signage Schedule.
- E. Provide Braille Grade indications for each character.
- F. Frames:
1. Miter corners; fit to hairline joint.
  2. Secure frame to sign with adhesive.
- G. Changeable Slide Inserts: Clear PETG sheet cover with slot behind for insertion of changeable slide strip, removed from side.

#### PART 3 EXECUTION

##### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

##### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

##### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

**SECTION 10 14 36**

**SIGNAGE**

**CARTER WATKINS ASSOCIATES ARCHITECTS, INC.**

**10 14 36-9**

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3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

## PART 1 - GENERAL

### 1.1 SUMMARY

#### A. Section Includes:

1. Phenolic-core toilet compartments configured as [**toilet enclosures**] [**and**] [**urinal screens**]. Provide Urinal screens between urinals and between urinals and adjacent sinks or open areas.

### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachment details.
- C. Samples for each type of toilet compartment material indicated.

### 1.3 INFORMATIONAL SUBMITTALS

- A. Product certificates.

### 1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

## PART 2 - PRODUCTS

### 2.1 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: [**75**] or less.
  2. Smoke-Developed Index: 450 or less.

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- B. Regulatory Requirements: Comply with applicable provisions in [**the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities**] [**and**] [**ICC A117.1**] for toilet compartments designated as accessible.

## 2.2 PHENOLIC-CORE TOILET COMPARTMENTS

Provide Bobrick Solid Color Reinforced Composite Sierra Series 1090 or equal. Floor mounted, overhead braced. Colors to be selected from full range of colors.

- A. Toilet-Enclosure Style: [**Floor anchored**].
- B. Entrance-Screen Style: [**Floor anchored**].
- C. Urinal-Screen Style: [**Wall hung**].
- D. Door, Panel[, **Screen**], and Pilaster Construction: Solid phenolic-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges[ **and no-sightline system**]. Provide minimum **3/4-inch- (19-mm-)** thick doors and pilasters and minimum **1/2-inch- (13-mm-)** thick panels.
- E. Pilaster [**Shoes**] [**and**] [**Sleeves (Caps)**]: Formed from stainless-steel sheet, not less than **0.031-inch (0.79-mm)** nominal thickness and **3 inches (76 mm)** high, finished to match hardware.
- F. Urinal-Screen Post: Manufacturer's standard post design of [**monolithic phenolic urinal screen cut out at bottom to form a post**]; with shoe[ **and sleeve (cap)**] matching that on the pilaster.
- G. Brackets (Fittings):
1. Stirrup Type: Ear or U-brackets, [**stainless steel**].
  2. Full-Height (Continuous) Type: Manufacturer's standard design; [**stainless steel**].
- H. Phenolic-Panel Finish:
1. Facing Sheet Finish: [**Two colors and patterns**] in each room.
  2. Color and Pattern: [**As selected by Architect from manufacturer's full range**], with manufacturer's standard [**through-color core matching face sheet**].
  3. Edge Color: [**Through-color matching facing sheet color**].

## 2.3 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard operating hardware and accessories.
1. Material: [**Stainless steel**].

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- 2. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
  - B. Hardware and Accessories: Manufacturer's heavy-duty stainless steel operating hardware and accessories.
    - 1. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
  - C. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
  - D. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless-steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.
- 2.4 FABRICATION
- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
  - B. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
  - C. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
  - D. Ceiling-Hung Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for connection to structural support above finished ceiling. Provide assemblies that support pilasters from structure without transmitting load to finished ceiling. Provide sleeves (caps) at tops of pilasters to conceal anchorage.
  - E. Floor-and-Ceiling-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at tops and bottoms of pilasters. Provide shoes and sleeves (caps) at pilasters to conceal anchorage.
  - F. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at **tops and** bottoms of posts. Provide shoes **and sleeves (caps)** at posts to conceal anchorage.

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- G. Door Size and Swings: Unless otherwise indicated, provide **24-inch- (610-mm-)** wide in-swinging doors for standard toilet compartments and **36-inch- (914-mm-)** wide out-swinging doors with a minimum **32-inch- (813-mm-)** wide clear opening for compartments designated as accessible.

**PART 3 - EXECUTION****3.1 INSTALLATION**

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
1. Maximum Clearances:
    - a. Pilasters and Panels: **1/2 inch (13 mm)**.
    - b. Panels and Walls: **1 inch (25 mm)**.
  2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than [**three brackets attached at midpoint and**] near top and bottom of panel.
    - a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
    - b. Align brackets at pilasters with brackets at walls.
  3. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.
    - a. Locate bracket fasteners so holes for wall anchors occur in masonry or tile joints.
    - b. Align brackets at pilasters with brackets at walls.

**3.2 ADJUSTING**

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors[ **and doors in entrance screens**] to return doors to fully closed position.

END OF SECTION 102113.17

Acousti-Seal® 932  
10 22 26 (10650)  
Operable Partitions

## SPECIFICATION - SECTION 10 22 26 (10650) OPERABLE PARTITIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

A. This Section includes the following:

1. Manually operated, paired panel operable partitions.

B. Related Sections include the following:

1. Division 3 Sections for concrete tolerances required.

2. Division 5 Sections for primary structural support, including pre-punching of support members by structural steel supplier per operable partition supplier's template.

3. Division 6 Sections for wood framing and supports, and all blocking at head and jambs as required.

4. Division 9 Sections for wall and ceiling framing at head and jambs.

#### 1.3 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified in writing by the operable partition manufacturer, as qualified to install the manufacturer's partition systems for work similar in material, design, and extent to that indicated for this Project.

B. Acoustical Performance: Test operable partitions in an independent acoustical laboratory in accordance with ASTM E90 test procedure and classified in accordance with ASTM E413 to attain no less than the STC rating specified. Provide a complete and unedited written test report by the testing laboratory upon request.

C. Preparation of the opening shall conform to the criteria set forth per ASTM E557 *Standard Practice for Architectural Application and Installation of Operable Partitions*.

D. The operable wall must be manufactured by a certified ISO-9001-2015 company or an equivalent quality control system.

#### 1.4 REFERENCE STANDARDS

A. ASTM International

1. ASTM E557 Standard Practice for Architectural Application and Installation of Operable Partitions.

2. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

3. ASTM C1036 - Standard Specification for Flat Glass.

4. ASTM C1048 - Heat-Treated Flat Glass—Kind HS, Kind FT Coated and Uncoated Glass.

5. ASTM E84 - Surface Burning Characteristics of Building Materials.

6. ASTM E413 - Classification for Rating Sound Insulation

B. Health Product Declaration Collaborative

1. Health Product Declaration Open Standard v2.1

C. International Standards Organization

1. ISO 14021 - Environmental Labels and Declarations - Self-Declared Environmental Claims (Type II Environmental Labeling).

2. ISO 14025:2011-10, Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures.



3. ISO 14040:2009-11, Environmental Management - Life Cycle Assessment - Principles and Framework.
  4. ISO 14044:2006-10, Environmental Management - Life Cycle Assessment - Requirements and Guidelines.
  5. ISO 21930 – Sustainability in Buildings and Civil Engineering Works — Core Rules for Environmental Product Declarations of Construction Products and Services.
- D. Other Standards
1. ADA – Americans with Disabilities Act.
  2. ANSI Z97.1 - Safety Glazing Materials Used in Buildings.
  3. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
  4. NEMA LD3 - High Pressure Decorative Laminates.

### **1.5 SUBMITTALS**

- A. Product Data: Material descriptions, construction details, finishes, installation details, and operating instructions for each type of operable partition, component, and accessory specified.
- B. Shop Drawings: Show location and extent of operable partitions. Include plans, elevations, sections, details, attachments to other construction, and accessories. Indicate dimensions, weights, conditions at openings, and at storage areas, and required installation, storage, and operating clearances. Indicate location and installation requirements for hardware and track, including floor tolerances required and direction of travel. Indicate blocking to be provided by others.
- C. Setting Drawings: Show imbedded items and cutouts required in other work, including support beam punching template.
- D. Samples: Color samples demonstrating full range of finishes available by architect. Verification samples will be available in same thickness and material indicated for the work.
- E. Reports: Provide a complete and unedited written sound test report indicating test specimen matches product as submitted.
- F. Create spaces that are healthy for occupants.
1. Furnish products and materials with Health Product Declaration (HPD), Manufacturer Inventory, or other material health disclosure documentation. Products without an HPD or other disclosure documentation are not acceptable.
- G. Furnish materials that generate the least amount of pollution.
1. Furnish products and materials that have third party verified environmental product declarations (EPD's). Consider products and materials that have optimized environmental performance (reduced life cycle impacts). Products without an EPD or other disclosure documentation are not acceptable.

### **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Clearly mark packages and panels with numbering systems used on Shop Drawings. Do not use permanent markings on panels.
- B. Protect panels during delivery, storage, and handling to comply with manufacturer's direction and as required to prevent damage.

### **1.7 WARRANTY**

- A. Provide written warranty by manufacturer of operable partitions agreeing to repair or replace any components with manufacturing defects.
- B. Warranty period: Two (2) years.

## **PART 2 – PRODUCTS**

### **2.1 MANUFACTURERS, PRODUCTS, AND OPERATION**

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
1. Modernfold, Inc.
- B. Products: Subject to compliance with the requirements, provide the following product:

1. Acousti-Seal #932 manually operated paired panel operable partition.

## **2.2 OPERATION**

A. Acousti-Seal #932: Series of paired flat panels hinged together in pairs, manually operated, top supported with operable floor seals.

B. Final Closure (select one):

1. Horizontally expanding panel edge with removable crank
2. Hinged panel closure
3. Enclose
4. Pass door closure

## **2.3 PANEL CONSTRUCTION**

A. Nominal 3-inch (76mm) thick panels in manufacturer's standard 48-inch (1220mm) widths. All panel horizontal and vertical framing members fabricated from minimum 18-gage or 16-gage formed steel with overlapped and welded corners for rigidity. Top channel is reinforced to support suspension system components. Frame is designed so that full vertical edges of panels are of formed steel and provide concealed protection of the edges of the panel skin.

B. Panel Skin Options:

1. 1/2-inch (13mm) NAUF medium density fiberboard, single material or composite layers continuously bonded to panel frame. Acoustical ratings of panels with this construction (select one):  
47 STC

C. Hinges for Closure Panels, Pass Doors, and Pocket Doors shall be:

1. Full leaf butt hinges, attached directly to panel frame with welded hinge anchor plates within panel to further support hinge mounting to frame. Lifetime warranty on hinges. Hinges mounted into panel edge or vertical astragal are not acceptable.

D. Panel Trim: No vertical trim required or allowed on edges of panels; minimal groove appearance at panel joints.

## **2.4 PANEL FINISHES**

A. Panel face finish shall be (select as required):

High pressure plastic laminate on MDF board.

B. Panel trim: Exposed panel trim of one consistent color from manufacturer's standard offering.

## **2.5 SOUND SEALS**

A. Vertical Interlocking Sound Seals between panels: Roll-formed steel astragals, with reversible tongue and groove configuration in each panel edge for universal panel operation. Rigid plastic or aluminum astragals or astragals in only one panel edge are not acceptable.

B. Horizontal Top Seals: Continuous contact extruded vinyl bulb shape with pairs of non-contacting vinyl fingers to prevent distortion without the need for mechanically operated parts.

C. Horizontal Bottom Seals (select one):

Modernfold IM2 bottom seal: Manually activated bottom seals with self-contained handle providing nominal 2-inch (51mm) operating clearance with an operating range of +1/2-inch (13mm) to -1-1/2-inch (38mm). Seal shall be operable from panel edge or face.

## **2.6 SUSPENSION SYSTEM** (select one)

A. #17 Suspension System

1. Modernfold Truss System: Prefabricated, self-supporting header system for the support of operable partitions. (For complete specification see Modernfold Truss System brochure Form #2600)

## **2.7 OPTIONS**

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. General: Comply with ASTM E557, operable partition manufacturer's written installation instructions, Drawings and approved Shop Drawings.
- B. Install operable partitions and accessories after other finishing operations, including painting have been completed.
- C. Match operable partitions by installing panels from marked packages in numbered sequence indicated on Shop Drawings.
- D. Broken, cracked, chipped, deformed, or unmatched panels are not acceptable.

### 3.2 CLEANING AND PROTECTION

- A. Clean partition surfaces upon completing installation of operable partitions to remove dust, dirt, adhesives, and other foreign materials according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and Installer that ensure operable partitions are without damage or deterioration at time of Substantial Completion.

### 3.3 ADJUSTING

- A. Adjust operable partitions to operate smoothly, easily, and quietly, free from binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Lubricate hardware and other moving parts.

### 3.4 EXAMINATION

- A. Examine flooring, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of operable partitions. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.5 DEMONSTRATION

- A. Demonstrate proper operation and maintenance procedures to Owner's representative.
- B. Provide Operation and Maintenance Manual to Owner's representative.

Modernfold, Inc.  
215 West New Road  
Greenfield, IN 46140  
Toll Free: 800.869.9685  
email: [info@modernfold.com](mailto:info@modernfold.com)  
[www.modernfold.com](http://www.modernfold.com)

SECTION 10 73 00

EXTRUDED ALUMINUM WALKWAY COVERS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

10 73 00-1

JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITIONS

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PART 1 GENERAL

1.1 RELATED DOCUMENTS:

- A. The bidding requirements, general conditions, supplementary conditions, drawings and requirements of division one specification shall apply to work specified in this section.

1.2 DESCRIPTION OF WORK:

- A. The extent of aluminum CANOPIES is shown on the drawings and as specified herein. Larger covers (wider than 8') to have downspout on each end. Narrow covers to have one downspout.
- B. Definition: Extruded Aluminum Walkway Cover shall consist entirely of extruded aluminum sections (roll-formed not acceptable). System shall consist of heli-arc welded, one-piece rigid structural bents (column and beam assemblies), decking, fascia, accessory items and hardware to provide a complete system.
- C. Water shall drain from deck into designated beams and out at grade level of columns through weepholes.

1.3 SUBMITTALS

- A. Shop Drawings: Submit detailed drawings, layout of walkway cover system, bent locations (identify drain columns and wet bents), all mechanical joint locations with complete details, connections, jointing and accessories. Include details of concrete footings and bent anchorage.
- B. Product Data: Submit manufacturer's product data, specifications, component performance data and installation instructions.
- C. Calculations: Provide signed and sealed structural calculations for the proposed walkway cover, by a professional engineer registered in the state of Georgia, who professes his discipline to be structural engineering.

1.04 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of the following except as otherwise indicated.

Standard Building Code, latest addition with amendments, if any.

AWS (American Welding Society) standards for structural aluminum welding.

- B. Manufacturer: Obtain aluminum covered walkway system from only one (1) manufacturer, although several may be indicated as offering products complying with requirements.

SECTION 10 73 00

EXTRUDED ALUMINUM WALKWAY COVERS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

10 73 00-2

JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITIONS

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- C. Installer Qualification: Firm with not less than three (3) years experience in installation of aluminum walkway covers of type, quantity and installation methods similar to work of this section.
- D. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible, to insure proper fitting of work. However, allow for adjustments within specified tolerations wherever taking of field measurements before fabrication might delay work.
- E. Shop Assembly: Pre-assemble units in shop to greatest extent possible and disassemble as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.
- F. Coordination: Coordinate work of this section with work of other sections which interface with covered walkway system. (sidewalks, curbs, building fascias, etc.).

1.5 PERFORMANCE REQUIREMENTS:

- A. System Performance: Provide aluminum covered walkway system that has been designed, produced, fabricated and installed to withstand normal temperature changes as well as live loading, dead loading and wind loading in compliance with Standard Building Code requirements for geographic area in which work is located.
- B. Sizes shown on drawings are to be considered minimum.
- C. Structure shall be capable of sustaining severe icing, hail, hurricane force winds and supporting a concentrated load such as being walked upon.

PART 2 PRODUCT

2.01 ACCEPTABLE MANUFACTURERS

- A. DITT-DECK Extruded Aluminum Canopy/ Walkway Cover System by Dittmer Architectural Aluminum is specified as the standard quality. Equals are acceptable.
- B. Equivalent systems by other manufacturers will be approved by addendum provided the following are submitted ten (10) days prior to bid opening and are complete:
  - 1. Submit evidence of having operated a successful business of manufacturing and installing complete extruded aluminum walkway cover systems.
    - a. Business must have been in operation under submitted name and ownership for a minimum of ten (10) years.
    - b. Submit a list of successfully completed projects of similar scope, size and complexity within the state of Georgia. List shall include job name, date of completion, architect's firm name, address and phone number, owner's name with representative and phone number.

SECTION 10 73 00

EXTRUDED ALUMINUM WALKWAY COVERS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

10 73 00-3

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- c. Submit complete shop drawings for above completed jobs.
- d. Submit complete details with structural properties (moment of inertia, section modules, modulus of elasticity, etc.) for all proposed sections (beams, columns, decking and other structural members).
- e. Comply with the requirements pertaining to substitution as set forth in Division One.

2.02 MATERIALS

- A. All aluminum extrusions shall be alloy 6063 heat treated to a T-6 temper.
- B. Standard finish for all components shall be DARK BRONZE anodize meeting Aluminum Association Specification AA-M-10C-22A-21 minimum.
- C. Fasteners:
  - 1. Deck Screws (rivets not permitted): Type 18-8 non-magnetic stainless steel sealed with a neoprene "O" ring beneath 5/8" outside dimension, conical washer.
  - 2. Fascia Rivets: Size 3/16" by 1/2" grip range aluminum rivets with aluminum mandrel.
  - 3. Bolts: All bolts, nuts and washers to be 18-8 non-magnetic stainless steel.
  - 4. Tek Screws: not permitted.
- D. Warranty:
  - 1. Manufacturer shall warrant the entire system against defects in labor and materials for a period of one (1) year commencing on the date of substantial completion as established in Division One of these specifications.
  - 2. Intention of this warranty is the manufacturer will come onto the jobsite and do all necessary to effect corrections of any deficiencies.
  - 3. Prima Facie Evidence of defects in labor and material may include but is not limited to, one or more of the following:
    - a. Moisture Leaks
    - b. Metal failure including excessive deflection
    - c. Fastener failure
    - d. Finish failure

2.03 FABRICATION

- A. Comply with indicated profiles, dimensional requirements and structural requirements.
- B. Use sections true to details with clean, straight sharply defined profiles and smooth surfaces of uniform color and texture, free from defects impairing strength and durability.
- C. All welding to be done by heli-arc process.

SECTION 10 73 00

EXTRUDED ALUMINUM WALKWAY COVERS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

10 73 00-4

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- D. Bents shall consist of shop welded one piece units. When size of bents do not permit shipment as a welded unit, concealed mechanical joints may be used.
- E. Mechanical joints shall consist of stainless steel bolts with a minimum of two (2) bolts per fastening. Bolts and nuts shall be installed in a concealed manner utilizing ½" thick by 1 ½" aluminum bolt bars welded to structural members. All such mechanical joints must be detailed on shop drawings showing all locations.
- F. Roof Deck: Extruded aluminum shapes, interlocking self-flashing sections. Shop fabricate to lengths and panel widths required for field assembly. Depth of sections to comply with structural requirements. Provide shop induced camber in deck units with spans greater than 16'-0" to offset dead load deflections. Internal dams are to be used at non-draining ends of deck.
- G. Expansion joints, design structure for thermal expansion and contraction. Provide expansion joints as required.
- H. Exposed rivets used to fasten bottom of fascia to deck to have finish to match fascia.
- I. Apply a shop applied dip-coat of clear acrylic enamel to each column end terminating in concrete to insulate from electrolytic reaction. Column ends shall be pierced to "key" grout to bent for maximum uplift protection.

PART 3 EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING:

- A. Deliver, store and handle covered walkway system components as recommended by manufacturer. Handle and store in a manner to avoid deforming members and to avoid excessive stresses.

3.02 EXAMINATION

- A. Examine adjacent work for conditions that would prevent quality installation of system.
- B. Do not proceed until defects are corrected.

3.03 CONCRETE FOOTINGS

- A. Concrete footings are not work of this section. Refer to "concrete work", Section 03310.
- B. Sleeves (styrofoam blockouts) shall be furnished by walkway cover manufacturer and placed by general contractor.

3.04 FIELD DIMENSIONS

SECTION 10 73 00

EXTRUDED ALUMINUM WALKWAY COVERS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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- A. General contractor shall field confirm bent locations, dimensions and elevations shown on shop drawings prior to fabrication.

3.05 INSTALLATION

- A. Erection: Set roof support frames (bents) into pockets provided in top of footings; set to required elevations, align, plumb, and level; and grout in place with 2,000 p.s.i. portland cement grout. Assure that grout fills all voids and “keys” to columns. Fill downspout units with grout to bottom of discharge level. Install aluminum deflectors after grouting. Follow manufacturer’s instructions. Match to finish and elevation of adjacent sidewalks.
- B. Install roof deck sections, accessories and related flashing in accordance with manufacturer’s instructions. Provide roof slope for rain drainage without ponding water. Align and anchor roof deck units to structural support frames.
- C. Assemble all components in a neat, workmanlike manner.

3.06 FLASHING

- A. Flashings: Flashing required between covered walkway system and adjoining structures are not work of this section. Refer to “Flashing and Sheet Metals”, Section 07600.

3.07 CLEANING AND PROTECTION

- A. Damaged Units: Replace roof deck panels and other components of the work which have been damaged or have deteriorated beyond successful minor repair.
- B. Cleaning: Remove protective coverings at time in project construction sequence which will afford greatest protection of work. Clean finished surfaces as recommended by manufacturer. Maintain in a clean condition during construction.
- C. Protection: Advise Contractor of protection and surveillance procedures, as required to ensure that work of this section will be without damage or deterioration at time of substantial completion.

END OF SECTION 107300



SECTION 12 20 00  
WINDOW SHADES

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.  
**JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION**  
JULY 17, 2023

12 20 00-1

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**ALL EXISTING AND NEW WINDOWS (INTERIOR AND EXTERIOR) TO RECEIVE ROLLER SHADES.**

1.2 SUMMARY

- A. This Section includes the following:
1. Bali Window Blinds or equal. ALL WINDOWS, (interior and exterior of building) are to receive blinds.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for the Bali Window Blinds.
- C. Samples for verification purposes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide the following:
1. Bali Premium roller shade with cordless lift, clear hem grip, Medium Cassette Valance, and standard hem. Color to be selected.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Comply with manufacturer's instructions applicable to products and application indicated.
- A. Enclosed headrail mounted between gypsum board returns into steel studs.

END OF SECTION

SECTION 12 35 30  
PLASTIC LAMINATE CASEWORK

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

12 35 30-1

JACKSON COUNTY SENIOR CENTER - RENOVATIONS AND ADDITION

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes all cabinets.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For residential casework. Include plans, elevations, details, and attachments to other work.
- C. Samples: For casework and hardware finishes.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For casework.

PART 2 - PRODUCTS

2.1 CABINETS

- A. Quality Standard: Provide cabinets that comply with KCMA A161.1.
  - 1. KCMA Certification: Provide cabinets with KCMA's "Certified Cabinet" seal affixed in a semiexposed location of each unit and showing compliance with KCMA A161.1.
- B. Door and Drawer Face Style: [**Flush overlay**].
  - 1. Door and Drawer Fronts: ~~1/2-inch-~~ (13-mm-) thick, plastic-laminate-faced particleboard[, **with continuous solid-wood pulls on one edge**][, **with PVC edgebanding**].
- C. Cabinet Style: [**Face frame**] [**Frameless**].
  - 1. Face Frames: ~~5/8-inch-~~ (16-mm-) thick particleboard with plastic laminate on exposed and semiexposed surfaces.
- D. Exposed Cabinet End Finish: [**Plastic laminate**].

SECTION 12 35 30  
PLASTIC LAMINATE CASEWORK

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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2.2 CABINET MATERIALS

- A. Hardwood Lumber: Kiln dried to 7 percent moisture content.
- B. Softwood Lumber: Kiln dried to 10 percent moisture content.
- C. Hardwood Plywood: HPVA HP-1.
- D. Particleboard: ANSI A208.1, Grade M-2.
- E. Particleboard: Straw-based particleboard complying with requirements in ANSI A208.1, Grade M-2, except for density.
- F. MDF: Medium-density fiberboard, ANSI A208.2, Grade MD.
- G. Hardboard: ANSI A135.4, Class 1 tempered.
- H. Exposed Materials:
  - 1. Plastic Laminate: **PREMIUM LAMINATE WITH SOFT GRAIN FINISH (Wilsonart #79 Ridgewood – Premium (or equal)- and edge banded with smooth edgeband.**
    - a. Colors, Textures, and Patterns [**As selected by Architect from cabinet manufacturer's full range**] .
    - b. Plastic-Laminate Edgebanding: Of same grade, pattern, and color of plastic laminate as for faces.
    - c. PVC Edgebanding: Rigid PVC extrusions, through color with satin finish, [**3 mm thick at doors and drawer fronts, and 1 mm thick elsewhere**].
      - 1) Color: [**As selected by Architect from cabinet manufacturer's full range**]
- I. Concealed Materials: Solid wood or plywood, of any hardwood or softwood species, with no defects affecting strength or utility; particleboard; MDF; or hardboard.

2.3 CABINET HARDWARE

- A. General: Manufacturer's standard units complying with BHMA A156.9, of type, size, style, material, and finish [**as selected by Architect from manufacturer's full range**].
- B. Pulls: [**Back-mounted decorative pulls**] Provide Chrome-finish 8” straight-bar pull handles with inset mounting posts.
- C. Hinges:[**Concealed European-style, self-closing hinges**] .

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**PLASTIC LAMINATE CASEWORK**

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- D. Drawer Guides: Epoxy-coated-metal, self-closing drawer guides; designed to prevent rebound when drawers are closed; with nylon-tired, ball-bearing rollers; and complying with BHMA A156.9, Type B05011 or Type B05091.
- E. Door and Drawer Bumpers: Self-adhering, clear silicone rubber.
  - 1. Doors: Provide one bumper at top and bottom of closing edge of each swinging door.
  - 2. Drawers: Provide one bumper on back side of drawer front at each corner.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Install casework with no variations in adjoining surfaces; use concealed shims. Where casework abuts other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips, and moldings in finish to match casework.
- B. Install casework without distortion so doors and drawers fit the openings, are aligned, and are uniformly spaced. Complete installation of hardware and accessories as indicated.
- C. Install casework level and plumb to a tolerance of **1/8 inch in 8 feet (3 mm in 2.4 m)**.
- D. Fasten casework to adjacent units and to backing.
  - 1. Fasten wall cabinets through back, near top and bottom, and at ends not more than **16 inches (400 mm) o.c.**
    - a. Fasteners: **[No. 10 wafer-head screws sized for not less than 1-1/2-inch (38-mm) penetration into wood framing, blocking, or hanging strips.**
- E. Adjust hardware so doors and drawers are centered in openings and operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.
- F. Clean casework on exposed and semiexposed surfaces. Touch up as required to restore damaged or soiled areas to match original factory finish, as approved by Architect.

END OF SECTION 123530

**QUARTZ AGGLOMERATE COUNTERTOPS****JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION**

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**SECTION 12 36 61.19**

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**QUARTZ AGGLOMERATE (NATURAL QUARTZ AND RESIN COMPOSITE) COUNTERTOPS**

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Corian® Quartz (formerly known as Zodiaq®) manufactured by DuPont, (E. I. du Pont de Nemours and Company), Chestnut Run Plaza 735, 974 Centre Road, P.O. Box 2915, Wilmington, DE 19805, Toll-Free: (800) 426-7426, Web site: [www.corianquartz.com](http://www.corianquartz.com); [www-surfaces.dupont.com](http://www-surfaces.dupont.com)

*Note: The purpose of this product guide specification is to assist the Specifier in specifying Corian® Quartz (formerly known as DuPont™ Zodiaq® Quartz Surface). Refer to Corian® Design (800-426-7426) and/or Zodiaq® Technical Bulletins for additional information. Use this guide specification for interfacing with architectural millwork and/or trim components. Corian® Quartz is fabricated like granite.*

*Design Professionals or Architects need to review Sections and edit to fit the needs of the project and local building code(s). Throughout the guide specification, there are Specifier Notes in blue to assist in the editing of the file. User input areas are enclosed within brackets, [\_\_\_\_\_].*

*This product guide specification is written in accordance with the Construction Specifications Institute (CSI) current versions Masterformat®, SectionFormat™ and PageFormat™. References are in accordance with the 2014 Revision of Masterformat®. The Specifier needs to coordinate numbers and titles with sections included for the project.*

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**PART 1 - GENERAL****1.01 SUMMARY**

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

**1.02 THIS SECTION INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING HORIZONTAL AND TRIM QUARTZ SURFACING PRODUCT TYPES:**

**QUARTZ AGGLOMERATE COUNTERTOPS****JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION**

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1. Countertops
2. Countertops with integrated sinks and lavatory bowls
3. Countertops with undermount sinks and lavatory bowls
4. Countertops with drop-in sinks and lavatory bowls
5. Vanity tops
6. Other interior counter or surfacing applications as shown on drawings

**1.03 RELATED REQUIREMENTS**

- A. Section 06 10 00 – Rough Carpentry
- B. Section 22 00 00 – Plumbing

**1.04 REFERENCES**

- A. CSA B45/IAPMO ANSI Z124 (previously ANSI Z124.6 – Plastic Sinks).
  1. CSA B45/IAPMO ANSI Z124 Section 5.7.1.3 – Point Impact tests.
- B. ASTM C170 – Standard Test Method for Compressive Strength of Dimension Stone.
- C. ASTM C370 – Standard Test Method for Moisture Expansion of Fired Whiteware Products.
- D. ASTM C373 – Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products, Ceramic Tiles, and Glass Tiles.
- E. ASTM C501 – Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser.
- F. ASTM C1026 – Standard Test Method for Measuring the Resistance of Ceramic Tile to Freeze-Thaw Cycling.
- G. ASTM C1028 – Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
- H. ASTM D570 – Standard Test Method for Water Absorption of Plastics.
- I. ASTM D696 – Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer.
- J. ASTM D790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- K. ASTM D792 – Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- L. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- M. ASTM G21 – Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- N. ASTM G22 – Standard Practice for Determining Resistance of Plastics to Bacteria.
- O. CSA B45.5-11/IAPMO Z124-2011 – Plastic Plumbing Fixtures.
- P. NEMA LD 3 – High Pressure Decorative Laminates.
  1. NEMA LD 3-3.3 – Light Resistance.
  2. NEMA LD 3-3.5 – Boiling Water Resistance.
  3. NEMA LD 3-3.6 – High Temperature Resistance.
  4. NEMA LD 3-3.8 – Ball Impact Resistance.
- Q. NFPA (National Fire Protection Association) - NFPA 101®, Life Safety Code®.
- R. NFPA 255 – Standard Method of Test of Surface Burning Characteristics of Building Materials.

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- S. ISO (International Organization for Standardization) - ISO 14001 – Environmental Management Systems.
  - T. UL (Underwriters Laboratories) - UL 723 – Standard Test Method for Surface Burning Characteristics of Building Materials.
  - U. ULC (Underwriters Laboratories of Canada) – ULC/CAN-S102 – Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
  - V. NSF (NSF International) NSF/ANSI Standard 51 – Food Equipment Materials.
  - W. New York City Construction Codes, Office of Technical Certification and Research, MEA (Materials and Equipment Acceptance), <http://www1.nyc.gov/>.
  - X. UL Environment/GREENGUARD - UL 2818 – Standard for Chemical Emissions for Building Materials, Finishes and Furnishings, Section 7.1.
  - Y. UL Environment/GREENGUARD - UL 2818 – Gold Standard for Chemical Emissions for Building Materials, Finishes and Furnishings, Section 7.1 and 7.2.
  - Z. UL 2824 – GREENGUARD Certification Program, Method For Measuring Microbial Resistance From Various Sources Using Static Environmental Chambers.
  - AA. SCAQMD (South Coast Air Quality Management District) VOC (Volatile Organic Content) Rule 1168 for Adhesive and Sealant Applications
  - BB. Star-K Kosher Certification ([www.star-k.org](http://www.star-k.org)).

**1.05 SUBMITTALS**

- A. Submit product data for each type of product indicated.
  - 1. Submit manufacturer’s product data on material characteristics, performance properties, fabrication instructions, installation instructions and maintenance instructions.
- B. Shop drawings:
  - 1. Show location of each item; provide complete detailed and dimensioned plans and elevations, large-scale details, attachment devices and other components.
    - a. Show the following:
      - 1) Full-size details, edge details, attachments, etc.
      - 2) Locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
      - 3) Fabrication details for brackets.
      - 4) Locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle and other items installed in quartz surface.
      - 5) Locations and sizes of cutouts for sink installation and lavatory installation.
      - 6) Type of sealant.
      - 7) Type of adhesive.
      - 8) Seam locations.
- C. Samples:
  - 1. For each type of product indicated:
    - a. Submit minimum 2-inch-by-2-inch sample in specified color. For viewing pattern or veining, submit minimum 4-inch-by-4-inch samples.
    - b. Cut sample and seam together for representation of seaming techniques.
    - c. Indicate full range of color and pattern variation.
    - d. Approved samples will be retained as a standard for work.

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- D. Product data:
    1. Indicate product description, fabrication information and compliance with specified performance requirements.
  - E. Fabricator/installer qualifications:
    1. Provide copy of certification number.
  - F. Certificates: Certify that products meet or exceed requirements.
    1. UL Environment– GREENGUARD and GREENGUARD Gold, current low emitting VOC certification of quartz surface and solid surface products.
    2. UL Environment– GREENGUARD and GREENGUARD Gold, current low emitting VOC certification for manufacturer’s recommended adhesive and/or sealant.
    3. UL Environment – Mold Resistance Certification in accordance with UL 2824.
  - G. Fire test response characteristics:
    1. United States – Provide Class A surface burning characteristics as determined by testing products per UL 723 (ASTM E 84, NFPA 255) or another testing and inspecting agency acceptable to authorities having jurisdiction.
      - a. Flame Spread Index: 25 or less.
      - b. Smoke Developed Index: 450 or less.
    2. Canada – Provide with surface burning characteristics as determined by testing products by UL Canada per ULC S102 or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - H. Maintenance data:
    1. Submit manufacturer’s care and maintenance data.
    2. Include in project closeout documents.

**1.06 QUALITY ASSURANCE**

- A. Qualifications:
  - a. Shop 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.
- B. Fabricator/installer qualifications:
  1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer or designated representative.
- C. Allowable tolerances:
  1. Variation in component size:  $\pm 1/8$  inch (3 mm) over a 10 foot length.
  2. Location of openings:  $\pm 1/8$  inch (3 mm) from indicated location.
  3. Minimum of  $1/16$  inch and a maximum of  $1/8$  inch (3 mm) clearance between quartz surfaces and each wall.
- D. Coordination drawings:
  1. Shall be prepared indicating:
    - a. Plumbing work.
    - b. Electrical work.
    - c. Miscellaneous steel for the general work.
    - d. Indicate location of all walls (rated and non-rated), blocking locations and recessed wall items, etc.
  2. Content:



**QUARTZ AGGLOMERATE COUNTERTOPS****JACKSON COUNTY SENIOR CENTER – RENOVATIONS AND ADDITION**

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- a. Project-specific information, drawn accurately to scale.
  - b. Do not base coordination drawings on reproductions of the contract documents or standard printed data.
  - c. 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.
  - d. Provide alternate sketches to designer for resolution of such conflicts.
    - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.
  - 3. Drawings shall:
    - a. Be produced in 1/2 inch scale for all fabricated items.
  - 4. Drawings must be complete and submitted to the architect within 60 days after award of contract for record only.
    - a. No review or approval will be forthcoming.
    - b. Coordination drawings are required for the benefit of contractor's fabricators/installers as an aid to coordination of their work to eliminate or reduce conflicts that may arise during the installation of their work.
  - E. Job mock-up:
    - 1. Prior to fabrication of architectural millwork, erect sample unit to further verify selections made under sample submittals and to demonstrate the quality of materials and execution.
    - 2. Mock-up shall be [\_\_\_\_\_].
    - 3. Build the mock-up to comply with the contract documents and install in a location as directed by the architect.
    - 4. Notify the architect two weeks in advance of the date of when the mock-up will be delivered.
    - 5. Should mock-up not be approved, re-fabricate and reinstall until approval is secured.
    - 6. Remove rejected units from project site.
    - 7. Mock-up, once approved, may become a part of the project and serve as a standard for judging quality of all completed units of work.
  - F. Pre-installation conference:
    - 1. Conduct conference at project site to comply with requirements in Division 1.

**1.07 DELIVERY, STORAGE AND HANDLING**

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors in clean and dry area prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
- D. Follow manufacturer's safe handling and storage recommendations.
- E. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

**1.08 WARRANTY**

- A. Provide manufacturer's 10-year warranty.
- B. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.

**1.09 MAINTENANCE**

- A. Provide maintenance requirements as specified by the manufacturer.

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**PART 2 - PRODUCTS**

**2.01 MANUFACTURERS**

- A. Contract Documents are based on products manufactured by DuPont (E. I. du Pont de Nemours and Company). Provide Corian® Quartz, formerly known as Zodiaq® (basis of design) subject to compliance with the requirements.
  - a. Address: Corian® Design, Corian® Quartz, Chestnut Run Plaza 735, 974 Centre Road, P.O. Box 2915, Wilmington, DE 19805.
  - b. Phone: (800) 426-7426.
  - c. Website: [www-surfaces.dupont.com](http://www-surfaces.dupont.com); [www.corianquartz.com](http://www.corianquartz.com).
  - d. Subject to compliance with the requirements, provide the following product: quartz surface from Corian® Design (basis of design).
- B. Substitutions: Equals permitted.

**2.02 MATERIALS**

- A. Material:
  - 1. Corian® Calacatta Novello Quartz material composed of ~93 % natural quartz with pigments and resin.
  - 2. Material shall have minimum physical and performance properties as specified.
- B. Thickness:
  - 1. 3 cm (1-1/8 inch).
- C. Edge treatment:
  - 1. Exposed Edge
    - a. [ SQUARE \_\_\_\_\_ ]
    - b. As indicated.
  - 2. Appliance Edge.
    - a. Finished.
- D. Seam width:
  - 1. 1/16 inch nominal unless otherwise specified.
- E. Sink mounting: Coordinate with all plumbing fixtures.
  - 1. Integrated.
  - 2. Undermount.
  - 3. Drop in.
- F. Backsplash:
  - 1. Applied.
- G. Endsplash:
  - 1. Applied.
- H. Corian® Quartz Performance Properties (TYPICAL RESULTS):
 

1. Flexural Strength	> 5,300 psi	ASTM D790
2. Flexural Modulus	5.3–5.7 X 106 psi	ASTM D790
3. Compression Strength (Dry)	27,300 psi	ASTM C170
4. Compression Strength (Wet)	24,400 psi	ASTM C170
5. Hardness	7	Mohs Hardness Scale
6. Thermal Expansion	1.45 x 10-5 meter/meter deg C	ASTM D696

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7.	Thermal Expansion	2.61 x 10 <sup>-5</sup> inch/inch deg F	ASTM D696
8.	Colorfastness	Passes	NEMA LD 3-3.3
9.	Gloss (60° Gardner)	45–50	ANSI Z124
10.	Wear and Cleanability	Passes	CSA B45.5-11/IAPMO Z124-2011
11.	Stain Resistance	Passes	CSA B45.5-11/IAPMO Z124-2011
12.	Fungal Resistance	No observed growth on product	ASTM G 21
13.	Bacterial Resistance	No observed growth on product	ASTM G 22
14.	High Temperature Resistance	None to slight effect	NEMA LD 3-3.6
	a. Temperature, 356 deg F		
15.	Boiling Water Resistance	None to slight effect	NEMA LD 3-3.5
16.	Freeze-Thaw Cycling	Unaffected	ASTM C1026
17.	Point Impact	Passes	ANSI Z124.6.4.2
18.	Ball Impact Resistance	No failure at 164 inches	NEMA LD 3-3.8
	a. Slabs, No fracture, 1/2 lb. ball – 2cm and 3 cm		
19.	Static Coefficient of Friction	0.89 (Dry), 0.61 (Wet)	ASTM C1028
20.	Abrasion Resistance	139	ASTM C501
21.	Density	2.4 g/cm <sup>3</sup>	ASTM D792
22.	Water Absorption, Long-term	0.12%	ASTM C373
23.	Water Absorption, Short	< 0.04%	ASTM C373
24.	Moisture Expansion	< 0.01% average	ASTM C370
25.	Flammability	Class A, all colors	NFPA 101® Life Safety Code
26.	Flame Spread Index	FSI 0 for 3 cm	UL 723
27.	Flame Spread Index	FSI ≤ 5 for 2 cm	UL 723
28.	Smoke Developed Index	SDI ≤ 40 for 3 cm	UL 723
29.	Smoke Developed Index	SDI ≤ 75 for 2 cm	UL 723
30.	Flame Spread Value	0 for 3 cm	CAN/ULC-S102
31.	Flame Spread Value	5 for 2 cm	CAN/ULC-S102
32.	Smoke Developed Value	10 for 3 cm	CAN/ULC-S102
33.	Smoke Developed Value	50 for 2 cm	CAN/ULC S102
34.	Nominal Thickness	2 cm and 3 cm	
35.	Nominal Weight per square foot for 2cm thickness is 10 pounds		
36.	Nominal Weight per square foot for 3cm thickness is 15 pounds		
I.	CORIAN® QUARTZ (ZODIAQ®) CERTIFICATIONS and APPROVALS:		
	1.	New York City Material Equipment Acceptance Number for DuPont™ Zodiaq® is 431-00-M.	
	2.	NSF/ANSI Standard 51, Listed by NSF.	
	3.	UL Environment/GREENGUARD Certified.	
	4.	UL Environment/GREENGUARD Gold Certified.	
	5.	UL 2824 - Mold Resistant.	
	6.	Kosher, Listed by Star-K.	

**2.03 ACCESSORY PRODUCTS**

- A. Mounting Adhesives:
1. 100 percent Silicone Sealant.
- B. Seam Adhesive:

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1. Corian® Joint Adhesive to create color-coordinated seam.
- C. Sink/bowl mounting hardware:
  1. Manufacturer's approved sink setters, bowl clips and fasteners for attachment of undermount sinks/bowls.

**2.04 FABRICATION**

- A. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
- B. Form joints between components using manufacturer's standard joint adhesive.
  - a. Reinforce as required.
  2. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
  3. Rout and finish component edges with clean, sharp returns.
  4. Rout cutouts, radii and contours to template.
- C. Smooth edges.

**2.05 FINISHES**

- A. Select from the manufacturer's standard color chart.
  1. Color:
    - a. [ Calacatta Novello ]
    - b. [ ]

**PART 3 - EXECUTION****3.01 INSTALLATION**

- A. General
  1. Install countertop materials in accordance with manufacturer's instructions.
  2. Additional weight from attached sink or lavatory will affect maneuverability of tops during transportation and installation.
  3. Carefully plan work to avoid damaging finished tops during transportation and installation.
- B. Install components plumb and level, in accordance with approved shop drawings and product installation details.
  1. Tops:
    - a. Flat and true to within 1/8 inch (3 mm) of a flat surface over a 10-foot length.
    - b. Allow a minimum of 1/16 inch to a maximum of 1/8 inch (3 mm) clearance between surface and each wall.
    - c. Form field joints using manufacturer's recommended adhesive (Corian® Joint Adhesive), with joint widths no greater than 1/8 inch (3 mm) in finished work.
    - d. Keep components and hands clean when making joints.
- C. Sinks/Lavatory Bowls:
  1. Adhere undermount sinks/lavatory bowls to countertops using manufacturer's recommended adhesive and mounting hardware.
  2. Adhere drop-in sinks/bowls to countertops using silicone sealant and manufacturer-recommended adhesives.
- D. Provide backsplashes and endsplashes as indicated on the drawings.

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1. Adhere to countertops using silicone sealant.
    - a. Keep components and hands clean when working with silicone sealant.

**3.02 CONNECTIONS:**

- A. Make plumbing connections in accordance with Division 22.
- B. Make electrical connections in accordance with Division 26.

**3.03 CLEANING AND PROTECTION**

- A. Keep components and hands clean during installation.
- B. Remove adhesives, sealants and other stains in accordance with manufacturer's instructions.
  1. Clean exposed surfaces in accordance with manufacturer's instructions.
  2. Components shall be clean on date of substantial completion.
    - a. Protect surfaces from damage until date of substantial completion.
  3. Replace or repair damaged work in a satisfactory manner.

**3.04 SCHEDULE**

- A. Countertops:
  1. Location: [ See Drawings ]
  2. Quartz surface is adhesively joined with exposed seams.
    - a. Color: [ Calacatta Novello ]
    - b. Edge Details [ Square ]
    - c. Backsplash [ 6" square ]
    - d. Sidesplash [ 6" square ]
    - e. Sink [ coordinate with Plumbing Drawings ]

**END OF SECTION**

SECTION 23 05 00  
GENERAL MECHANICAL PROVISIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

23 05 00-1

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PART 1 - GENERAL

**1.01 CONDITIONS OF THE CONTRACT**

- A. Work included under this section of the specifications is subject to the provisions of the Contract Documents, General and Special Conditions.

**1.02 SCOPE**

- A. This section of the specifications describes materials and equipment to be incorporated into the plumbing, heating, ventilation, and air conditioning systems and requirements for performing related work. The contractor shall coordinate his work with other crafts to avoid conflicts.

**1.03 WORK INCLUDED**

- A. The work covered by this section includes providing all labor, equipment and materials as specified herein, shown on the drawings or required for a complete and satisfactory installation.

**1.04 RELATED WORK SPECIFIED IN OTHER SECTIONS**

- A. Division 1: General Requirements.
- B. Cutting and repairing of walls, ceilings, roofs and structure, except as specified herein.
- C. Painting, except as specified herein.
- D. Providing electric wiring systems for power, interlock, remote starting, and control service except as specified herein.
- E. Installing motor starters and thermal overload switches.
- F. Installing remote push button stations and breakglass stations.
- G. Casework.

**1.05 CODES AND STANDARDS**

- A. Perform work in accordance with local, state, and federal regulations. Code requirements are minimum and shall be complied with at no additional cost to owner.
- B. In event of a discrepancy between contract documents and governing codes, comply with the codes. It will be assumed that such discrepancy was noted and cost of adjustment included in the bid price. Before starting work, submit to architect in writing a description of such adjustments or changes as may exist.
- C. Where requirements of the contract documents exceed code requirements, perform work in accordance

SECTION 23 05 00  
GENERAL MECHANICAL PROVISIONS

CARTER WATKINS ASSOCIATES ARCHITECTS, INC.

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with the contract documents.

D. The following shall be adhered to as a minimum:

1. Standard Building Code, 1994 Edition.
2. NFPA Standard 90A, 1996 Edition.
3. NFPA Standard 70 ( Electrical Code ), 1991 Edition.
4. SMACNA HVAC Duct Construction Standards, Latest Edition.
5. The Standard Plumbing Code, 1991 Edition.
6. Standard Mechanical Code, 1996 Edition.
7. Standard Gas Code, 1996 Edition.
8. The heating and cooling equipment and installation shall conform to Standard No. 70 ( Electrical Code ) of the National Fire Protection Association 1991 Edition.

#### 1.06 ABBREVIATIONS & ACRONYMS

A. These abbreviations and acronyms are used in this section:

ASHRAE - American Society of Heating, Refrigerating, and Air Conditioning Engineers, INC.

NFPA - National Fire Protection Association

SMACNA - Sheet Metal and Air-Conditioning Contractors National Association

UL - Underwriters= Laboratory

#### 1.07 DEFINITIONS

A. To establish common meaning of terms in the mechanical work, use these definitions:

- |              |   |  |
|--------------|---|--|
| Provide      | - | Furnish and install subject item, complete with accessory items for safe operation within the design intent.   |
| Furnish      | - | deliver subject item to project at point of final installation or use, except where other point is specified.  |
| Install      | - | make a final installation of items furnished.  |
| Complete     | - | with all accessory items required for safe operation within the design intent.   |
| Indicated    | - | as shown on drawings.  |
| Concealed    | - | where used in connection with insulation and painting of piping, ducts and accessories to mean hidden from sight, as in chases, furred spaces, pipe shaft or suspended ceilings. |
| Exposed      | - | not concealed.   |
| Condensation | - | visible moisture on surfaces.  |

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**1.08 PERMITS, INSPECTIONS AND STREET CONNECTIONS**

- A. Secure and pay for permits and inspections required for installation of the work. Deliver certification of inspections to architect.
- B. Arrange for and pay costs incurred for connections of water, gas and sewer, including furnishing of water meter, excavating, trenching, backfilling, and repairing payment as required for installation of the work where indicated on the drawings or specifically noted on the drawings.

**1.09 VERIFY EXISTING CONDITIONS**

- A. Contractor, before commencing work, shall examine all conditions on which this work is in any way dependent for perfect workmanship according to the intent of drawings and specifications and shall report to the general contractor, in writing, and conditions which prevent this contractor from performing acceptable work.
- B. It shall be assumed that contractor, before submitting his bid, shall have made an Aon-site@ inspection of the premises to determine the conditions under which he will be expected to perform this contract. No increase in contract price shall be allowed due to failure of the contractor to perform this Aon -site@ inspection.

**1.10 DESIGN CONDITIONS**

- A. Outdoor design conditions are in accordance with the ASHRAE Handbook of Fundamentals.

**1.11 DRAWINGS**

- A. Refer to the architectural drawings for such details as finishes, dimensions, materials, etc., of the building. Check architectural features such as door openings, wall thicknesses, wall locations, etc./ against the architectural drawings prior to the installation of the work.
- B. Mechanical drawings are diagrammatic, showing general locations of fixtures, pipes, etc., and are not to be scaled. Check all dimensions, existing conditions, etc., at building site. Provide off-sets, bends, fittings, and swing joints not shown, but required for proper installation of mechanical work.
- C. Furnish material and labor necessary to make a complete operating system except in such cases that are specifically indicated by others.
- D. This division of the specifications and accompanying drawings shall be considered as supplemental one to the other; materials and equipment and labor called for by one and not the other shall be supplied and installed as though specifically called for by both.



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E. As Built Drawings:

Keep a blueline set of the contract or shop drawings exclusively for the purpose of recording the exact installed locations of piping and equipment as the project progresses. Upon completion of the work the contractor shall modify reproducible transparencies to reflect the noted changes throughout the project. The changes indicated on the transparencies shall be drafted in a neat and legible manner.

The as-built drawings shall include:

1. Mark all drawings AAS- BUILT CONSTRUCTION DOCUMENTS@.
2. Indicate the date drawings were prepared.
3. The Contractor=s name, address, and phone number.
4. Revise schedules per equipment submittal, including manufacturer and capacities.

1.12 CONTRACTOR=S CLOSE-OUT CHECKLIST

- A. The contractor shall, at the end of the projects, submit to the owner the PROJECT CLOSE-OUT CHECKLIST filled in, in its entirety. Final payment shall not be approved until checklist is approved. The checklist is found at the end of this section.

PART 2 - PRODUCTS

2.01 LAYOUT BASIS

- A. The system layout is based upon the use of particular items of equipment with such items identified by manufacturer=s make and model number. Physical dimensions, arrangement and service connections required for these particular items have been considered in making the layout. The equipment of another manufacturer listed as Acceptable@ on that item of equipment may be submitted provided that energy requirements are no greater than for layout basis, and that additional service connections will be made at no additional cost to the owner.
- B. Should shop drawings disclose that the above requirements cannot be met on the basis of the submitted equipment, contractor shall furnish equipment as specified for ALayout Basis@.
- C. If equipment other than layout basis is proposed, the cost of all such changes as may be required in service connections and in structural systems to accommodate the proposed substitution, including additional engineering services, become the responsibility of the contractor and impose no additional cost to owner

2.02 MATERIALS

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- A. All materials used in the job shall conform to the standards cited.
- B. Where mention of trade names and brands are used in describing materials for this installation, they are to indicate type, quality and arrangement of material required. Equal materials by other manufacturers, if used, must be approved by architect, prior to installation.
- C. There shall be no asbestos in any material furnished under this contract.

**2.03 DATA AND DRAWINGS TO BE SUBMITTED**

- A. Within 30 days after contract is signed, nine (9) copies of ALL equipment and ALL materials data requiring review shall be submitted thru proper channels after having been reviewed and stamped by subcontractor and general contractor.
  - 1. Data shall be bound in loose-leaf, three-ring, hard-back binders with pockets for diagrams  
Sectionalize with numbered tabs and preface with reference index.
  - 2. Cover sheet shall list project name, location, architect, engineer and general contractor.
  - 3. All items of equipment shall be submitted at same time except items such as temperature controls and diagrams that are dependent upon Areviewed@ data. They may be submitted separately at a later date. Provide sections in binders tabbed for these items to be inserted at a later date.
- B. All submittal data shall include project name, the model, style and size of item being submitted, local manufacturer=s representative and telephone number and all criteria shown on schedule on plans. Submitted items shall include but not be limited to the following:
  - 1. Pipe Specialties
    - a. Include capacity curve with pump suction diffuser.
    - b. Valves
    - c. Valve Tags
  - 2. Calibrated Balancing Valves
  - 3. Inertia Bases
  - 4. Pumps
    - a. Submit curves
  - 5. Chemical Treatment System
  - 6. Insulation
  - 7. Sump Pumps
    - a. Submit pump curves
  - 8. Fans

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- a. Submit fan curves on all fans including AHU=s and RTU=s.
  - 9. Flexible Duct
  - 10. Roof Curbs
- C. After reviewed data has been returned, contractor shall proceed with shop drawings of duct work and equipment room piping shall be submitted.
- 1. Duct Work Shop Drawings shall not be smaller than 1/4" = 1' -0" scale and must include duct size;
    - equipment connections and pad layout; location, dimensioned from building structure; off-sets, bottom elevation above finished floor; liner where required, plenums and all accessories.
  - 2. Equipment Room Drawings shall include boilers, pumps, major piping (including control, check, isolation, balancing, and drain valves), pad layouts for all floor mounted equipment, air handlers and associated accessories. Scale to be not less than 1/4" = 1' -0".
  - 3. Duct Work and Equipment Room Shop Drawings shall be prepared on sheets the same size as contract documents. Enlarged copies of contract documents shall not be acceptable as shop drawings.
- D. Separate binders may be submitted for major sub-contractors such as HVAC; Plumbing; Fire Protection.
- E. Attention is directed to a paragraph entitled AOperation and Maintenance Instructions@, Section 15 905 requiring copies of reviewed data to be included in O&M manuals.

**2.04 CERTIFICATES**

- A. Upon acceptance by authorities having jurisdiction, certificates of occupancy required for this project including plumbing, HVAC, fire protection and Health Department certification of portable water shall be indicated by the responsible contractor(s).

**2.05 EQUIPMENT FOUNDATIONS**

- A. All floor mounted equipment, unless otherwise detailed, shall be mounted on 4" high concrete pads extending a minimum of 4" beyond longest dimension in each direction. Concrete shall be 3,000 psi.

**2.06 FIRE STOPPING**

- A. Piping penetrations in fire walls shall be sealed with UL listed fire stopping materials meeting requirements of ASTM E-814.
- B. Acceptable products are Dow Corning 3-6548 Silicone RTV Foam, Flamesafe T&B Firestop, 3M,

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Nelson Electric and GE Pensil.

**PART 3 - EXECUTION**

**3.01 PROTECTION OF WORK DURING CONSTRUCTION**

- A. Provide protective covers, skids, plugs, caps and coatings to protect equipment and materials from damage and deterioration during construction.
- B. Store equipment and material under cover and off the ground.
- C. When outdoor storage is necessary, provide protective covers of sheet plastic of gauge suitable for the area involved and reinforced to withstand wind and precipitation. Set equipment and materials on skids or platforms of height sufficient to avoid damage from splattering and ground water.
- D. Plug ends of pipes when work is stopped to prevent debris from entering the pipes.
- E. Close open ends of ductwork with temporary closures of sheet plastic taped in place on horizontal ducts and sheet metal caps with drip overhangs for ducts opening upward.
- F. Do not operate any air handling systems during the construction period without filters in place to filter air entering the fan. Protect the exhaust fans by temporary filters cut from roll media and fastened over the air inlets.

**3.02 WORKMANSHIP**

- A. The entire contract shall be executed in a neat, substantial and workmanlike manner, according to the true intent and meaning of the plans and specifications. Any work not installed in a neat, substantial and workmanlike manner shall, when directed in writing, be removed and replaced at the contractor's expense without additional cost to the owner.

**3.03 TOOLS**

- A. The Contractor for this work shall furnish all tools, machinery, hoists and other means for proper installation of the work.

**3.04 TRENCHING, BACKFILLING AND PAVING**

- A. Install water service piping and sewers below recorded frost penetration line in compliance with applicable codes.
- B. Excavate trenches to sufficient width, shore trenches, and remove water as necessary to permit proper installation of the work.
- C. Backfill trenches only after piping has been tested, inspected, and locations of pipes and

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appurtenances properly recorded.

- D. Maintain clearance from excavation to footings and outside bearing walls of 3 feet and an angle of not greater than 45-degrees to bottom of such footings or outside bearing wall.
- E. Provide shoring when soil conditions and depth of excavation warrant shoring.
- F. Where rock is encountered, remove rock to a depth of 6" below desired bottom of excavation and backfill with clean earth to desired level.
- G. When piping is laid in fill or loose sand, tamp bottom of trenches to obtain 95% of dry maximum density compaction as determined by Standard Proctor Compaction Test, ASTM D698-58, prior to installation of pipes.
- H. Use backfill free from rocks and debris, compacted in 6" layers as the excavation is filled. Take precaution to prevent damage to the piping.
- I. Hand tamp backfill around the lines to depth of 2 feet above top of the lines and compact to obtain 95% of dry maximum density compaction as determined by the Standard Compaction Test ASTM D698-58.
- J. Provide bell holes and continuous firm bedding for piping.

**3.05 CUTTING AND PATCHING**

- A. All cutting and patching needed for installation of mechanical system shall be included under this Division.
- B. No cutting will be permitted without prior approval by the owner.
- C. Patching will be done by the trade whose work has been cut and shall be paid for under the mechanical division of the specifications.
- D. Contractor shall furnish to other trades information such as size, position and arrangement of materials and equipment, so that openings in floors, walls, roofs, beams, and ceilings can be provided as construction progresses. When openings are omitted because of his failure to furnish information to the contractor, this trade at his expense, shall direct and pay general contractor to do cutting and patching required.

**3.06 EQUIPMENT FOUNDATIONS**

- A. Concrete foundations and steel supports, etc., shall be provided in accordance with the Concrete and Structural Division of the specifications.
- B. Concrete foundations shall have 3/4" beveled edges and all surfaces rubbed smooth prior to mounting equipment.
- C. Prepare structural slabs to receive pad and curbs. Roughen contact surface before pouring concrete.

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- D. For equipment provided with gout holes, fill voids with non-shrinking grout after alignment and before operation of equipment.

**3.07 COORDINATION OF INSTALLATION**

- A. Coordinate work under this division with work under other divisions.
- B. Install work to fit into the spaces provided. Avoid damage on account of ill-timed work.
- C. Arrange work to provide maximum headroom and clearance consistent with the requirements of the documents.
- D. Except where otherwise noted, arrange piping to run either parallel or normal to building lines, and true to grade.
- E. Provide supports and anchors for work to avoid damage from movement.
- F. Place equipment, valves and unions requiring service in accessible locations.
- G. Install materials and equipment completely with piping, controls and accessories.
- H. Coordination of equipment located in ceiling plenums ( air conditioning equipment, ductwork, plumbing, lights, fire protection lines, structure, etc.) shall be done before installation is begun and continued during construction to assure proper space for maintenance of equipment and maneuverability of light fixtures in the grid.

**3.08 COUNTER FLASHING**

- A. All flashing methods and materials shall provide a complete watertight installation.
- B. Provide counter flashing for items placed on roof or piercing roof. General Contractor shall provide base flashing.
- C. Riser sleeves for piping and conduits in membrane waterproofed floors shall have flashing clamps attached to membrane. Large sleeves shall be shop fabricated. Sleeves shall extend 2 inches above finished floor.
- D. Drains and cleanouts in membrane water proofed floors shall have flashing clamps attached to the membrane.
- E. Ducts passing through roof shall be counterflashed with sheet metal, soldered to duct riser and extended down over roof curbs, which is properly flashed by the General Contractor. Apply heavy coating of roofing cement at junction of duct and counterflashing collar.

**3.09 CLEANING AND ADJUSTING**

- A. All equipment, pipe, valves and fittings shall be wiped clean, with all traces of oil, dust, dirt, and paint

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spots removed. Bearings shall be lubricated as recommended by the equipment manufacturer.

All control equipment shall be adjusted to setting indicated.

**3.10 PAINTING**

- A. Clean surfaces of work under this Division and leave surfaces ready for painting. Colors shall be selected by Architect.
- B. Where surfaces of factory finished items are marred, refinish those surfaces to original condition with factory furnished touch up paint.
- C. The following, as a minimum, shall be painted:
  - 1. Steel equipment supports.
  - 2. Exposed ductwork where specified.
  - 3. Ferrous louvers and grilles where specified elsewhere.
  - 4. Exposed ferrous pipe hangers.

**3.11 NOTIFICATION BEFORE INSPECTION**

- A. Notify the architect/engineer in writing not less than five (5) working days before work is ready for inspection.

**3.12 COORDINATION OF ELECTRICAL WORK**

- A. Provide electrically operated equipment designed and built for operation with electric characteristics provided by Division 16. Verify voltage, horsepower, wattage and phase from electrical drawings before ordering equipment.
- B. Provide motor controls, systems controls, starters, contractors, etc., required for the mechanical systems complete as a part of the motor or apparatus which it operates, unless specifically noted to be provided under another section.
- C. Provide under the work of this section all other devices, line and low voltage control and interlock wiring, and additional conduit necessary but not indicated on the electrical drawings, all in accordance with material and installation requirements.
- D. Provide wiring diagrams required for the proper installation of the equipment under the work of this section.
- E. All mechanical assemblies containing multi-motors or electric heating elements shall be factory equipped with integral over-current protection for each motor/heater in accordance with the requirements of the N.E.C.

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**3.13 GUARANTEE**

- A. Contractor shall guarantee this work and make good without cost to the owner any defects in equipment, materials or workmanship which may develop within the period of one (1) year from date of acceptance or beneficial use by the owner.
- B. Refrigeration Compressors shall be provided with an additional 4 year warranty which shall include labor and refrigerant.

END OF SECTION

**MECHANICAL PROJECT CLOSE-OUT CHECKLIST**

The following items as stipulated by Carter Watkins Associates and/or their Consultants are to be provided. The project will not be accepted as 100% complete until these items are provided to the appropriate parties.



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<u>ITEM</u>	<u>ACCEPTED BY</u>	<u>REPRESENTING</u>	<u>DATE</u>
1. O & M Manuals	_____	_____	_____
2. Copy of shop drawings and submittals	_____	_____	_____
3. Extended warranties for HVAC equipment	_____	_____	_____
4. Certification of welders	_____	_____	_____
5. Controls under glass	_____	_____	_____
6. As-builts	_____	_____	_____
7. Test and balance report	_____	_____	_____
8. Change out construction filters in air	_____	_____	_____

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moving equipment

9. Fire protection

documents  
reviewed by  
Insurance  
Underwriter

10. Valve tags and

charts

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**PART 1 - GENERAL**

**1.01 WORK INCLUDED**

A. The work covered by this section includes furnishing all labor, equipment, and materials as specified herein, shown on the drawings, or required for a complete and satisfactory installation.

**1.02 REFERENCE STANDARDS**

- A. American National Standards Institute (ANSI)
- B. American Society of Mechanical Engineers (ASME)
- C. National Fire Protection Association (NFPA)
- D. Underwriters Laboratory

**PART 2 - PRODUCTS**

**2.01 PIPING**

A. Domestic Water Systems:

- 1. Pipe, 3" size and smaller: Copper water tube manufactured in accordance with ANSI H23-1.
  - a. Type AL@ hard copper above ground.
  - b. Type AK@ hard or soft copper underground or in pipe trench.
- 2. Fittings: Wrought copper seat joint conforming to ANSI B16.22.
- 3. Screwed or flanged to sweat pipe connections cast brass, ASA B16.18.
- 4. Joints:
  - a. 2" and smaller: 95-5 (95% tin and 5% antimony) solder.
  - b. 2 - 2" and larger: 95-5 (95% tin and 5% antimony) solder.
  - c. All joints below slab on grade shall be alloy solder melting not less than 1000 degrees F.
- 5. Unions:
  - a. Cast brass or bronze with soldered connections. Unions 2" and smaller, ground joint; 2 - 2" and larger, flanged.
- 6. Pipe, 4" diameter and larger:
  - a. Underground: 4" size shall be Class 51, 6" and larger shall be Class 50 ductile iron, ANSI A21.51-1976 with push on or mechanical joints with the bituminous outer coating. Fittings shall be 250 psi ductile iron, mechanical joints with bituminous outer coating.

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- b. Above Ground: 4" size and larger shall be type L hard drawn copper with wrought copper or cast brass fittings.
- B. Soil, Waste, and Vent piping within the building and where indicated on the drawings.
  - 1. Pipe and Fittings:
    - a. Above slab-on grade and inside the building shall be PVC pipe and fittings properly marked to indicate the system complies with all Soil Pipe Standards 301-74.
    - b. Below slab-on grade and under floor shall be hub and spigot with oakum and lead caulked joints or at contractor=s option, neoprene one-piece elastometric compression gasket joints for pipe bearing on virgin soil.
    - c. Sanitary outside building may be PVC or at Contractor=s option, extra strength vitrified clay with PVC joints.
  - 2. Pipe and Fittings:
    - a. ABS or PVC piping above and below slab on grade except in return air plenums.
    - b. ABS plastic DWV piping and fittings shall conform to ASTM Standard D2661 and shall be so marked. ABS solvent cement shall conform to ASTM Standard D-2235.
    - c. PVC plastic DWV piping and fittings shall conform to ASTM Standard D2665 and shall be so marked. PVC solvent cement shall conform to ASTM Standard D-2564. PVC primer shall be applied to pipe and inside of socket fittings before applying PVC solvent cement.
    - d. Pipe cement that is recommended by the manufacturer for use on neither ABS of PVC pipe shall not be permitted on the project.
    - e. All plastic pipe and fittings shall be NSF approved and shall be so marked.
    - f. All ABS and PVC plastic pipe and fittings shall have solvent socket ends.
- C. Waste connections to service sink trap standards:
  - 1. Pipe: Galvanized Schedule 40 steel pipe.
  - 2. Fittings: 125 lb. galvanized, screwed, recessed pattern, drainage fittings.
  - 3. Options: Type AL@ copper with adapters.
- D. Waste connections to lavatories, sinks, and drinking fountains:
  - 1. Pipe: Type AL@ hard copper manufactured in accordance with ANSI H23.1.
  - 2. Fittings: Cast brass alloy or wrought copper drainage fittings manufactured in

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accordance with ANSI B16.23.

- E. Soil connections to urinals:
  - 1. Pipe: Type AK@ copper with wrought copper pressure fitting or red brass nipples and cast brass fittings.
- F. Waste connections to water closet:
  - 1. Floor Mounted - Cast iron closet flange bolted to fixture with fixture setting seal gasket.
  - 2. Wall Hung - Chair carriers as specified with fixture.
- G. Condensate Drain Piping:
  - 1. Type AM@ copper tubing.
  - 2. Fittings:
    - a. Copper pipe: Sweat type wrought copper or cast brass.
    - b. Provide cleanout for all changes of direction exceeding 45 degrees.
- H. Chilled Water and Hot Water Space Heating Piping:
  - 1. Pipe: Schedule 40 black steel conforming to ASTM A120.
  - 2. Fittings: Wrought carbon steel butt welding fittings, conforming to ASTM A234, for pipe sizes 2-1/2" and larger. Malleable iron, 150 lb. class, screwed conforming to ASTM A47, for pipe sizes 2" and smaller.
  - 3. Alternate Fittings: Grooved piping and fittings.
    - a. Acceptable manufacturers are Victaulic and Grinnell Groove-loc.
    - b. Fittings shall be rigid type unless noted otherwise on plans.
    - c. Manufacturer shall submit piping shop drawings.
- I. Gas Piping:
  - 1. Pipe: Schedule 40, black steel pipe conforming to ASTM A-120, factory coated and wrapped for underground, uncoated for above ground.
  - 2. Fittings: Carbon steel, butt weld for sizes 2-1/2" and larger and black malleable iron, screwed for 2" and smaller. Brushings are not permitted.
  - 3. Corrosion protection: Apply corrosion resistant coating, to all underground joints and damaged factory wrap.
  - 4. Gas pipes shall not be installed below floor slabs on grade, in partitions, walls or plenums except as directed and as approved by local codes.
  - 5. Provide gas cock for each piece of equipment.
- J. Compressed Air Piping: (125 psig)

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1. Pipe: Type AL@ copper.
2. Fittings: Wrought copper sweat joint conforming to ANSI B16.22. Construct joints with Silfos.

OR

3. Pipe: Schedule 40, black steel conforming to ASTM A-120.
4. Fittings: Carbon steel, 125 lb. butt weld for size 2-1/2" and larger; black malleable screwed for 2" and smaller.

K. Underground Piping Systems:

1. The layout basis of the following chilled water, hot water systems is Thermal Pipe Systems. Acceptable alternates are Ricwil, Permapipe, and Thermacore.
2. Space Heating Hot Water Piping:
  - a. HEAT-TITE shall be used for hot water supply and return using a rubber ring jointing method. Unless otherwise specified, all pipe, fittings, valves, and accessories shall conform to the requirements of ANSI B31.1, and shall be of the proper type for pressure and temperature of the heating or cooling water.
  - b. Steel Carrier Pipe: Carrier pipe shall be steel pipe.
  - c. HEAT-TITE COUPLING: The HEAT-TITE coupling shall be Reinforced Thermosetting Resin Plastic (RTRP). The RTRP coupling shall be glass filament wound epoxy ring, shall be machined into the coupling. The length of the coupling shall be such that when correctly assembled it will give the proper end separation.
  - d. Rubber Sealing Rings: Rubber sealing rings for HEAT-TITE piping shall be molded heat resistant Ethylene Proplene Diene Monomer (EPDM) using a properly vulcanized compound. The ring surfaces shall be smooth and free from all porosity and internal voids.
  - e. PVC Casing Pipe: The Polyvinyl Chloride (PVC) Casing Pipe shall be of virgin PVC resin meeting the classification requirements of ASTM D1784. The thickness shall be as shown on the following pages.
  - f. Rubber End Seals: Rubber end seals for insulated HEAT-TITE shall be a high temperature (HT) heat resistant Ethylene Proplene Diene Monomer (EPDM) molded rubber compound. All surfaces shall be smooth and free of voids.

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- g. Polyurethane Foam Insulation: Polyurethane foam insulation shall meet the following specifications:

Type:	Two component urethane
Compressive Strength:	25 psi parallel min at 5% comp
Shrinkage:	None at 70 F
Free Rise Density:	1.5 to 2.5 lbs / cu. ft.
Aged AK@ (70 F - 72 hrs):	0.140 BTU per inch, per hour, per degree Fahrenheit, per s.f.
Closed Cell Content:	90%
Insulation Concentricity:	Carrier Pipe shall be concentric to casing pipe. The allowable maximum deviation from center line of carrier pipe shall be plus or minus 1/4 inch at the casing center point and plus or minus 1/16 inch at the end seals.

- h. Casing-Tite Coupling: The Casing-Tite coupling shall be of virgin PVC Resin meeting classification requirements of ASTM D1784. The coupling shall be SDR 51 or heavier. The rubber rings shall meet ASTM D1869. The Casing Tite coupling shall have a groove molded into each end and the sealing rings inserted into the groove at the factory.

- i. Insulated Fittings: Fittings may be preinsulated by Thermal Pipe Systems, Inc. using the same insulation thickness and casing as the pipe. Where necessary laid-up fiberglass casing will be substituted in all or part of the fitting. A thrust plate of the proper size shall be provided. End seals on fittings shall be the same as used on the pipe.

- j. Wall Penetration Sleeves: Provide where piping passed masonry or concrete walls, floors, and roofs. Sleeves in outside walls below and above grade, in floor, or in roof slabs, shall be schedule 40 or standard weight coated black steel pipe. Space between piping or insulation casing, and the sleeve shall be sufficient to allow proper

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water tight sealing, but never less than 2". Sleeves shall be held securely in proper position and location during construction. Sleeves shall be of sufficient length to pass through entire thickness of walls or slabs. Sleeves in floor slabs shall extend 2 inches above the finished floor. In existing concrete manholes or building, wall penetrations may be made using the Acore drilling@ methods providing proper care is taken to drill the holes to the size needed and square to the line of the pipe.

- k. Wall Penetration Seals: All wall penetrations shall be sealed to prevent water from entering the building or manhole. The sealing material shall be as specified by the engineer.
  
- l. Insulation: Thickness of insulation for HEAT-TITE pipe and fittings shall be as shown below.
  
- m. Temperature and Pressure: The HEAT-TITE piping system and all of its components to operate up to 150 psig at 250 degrees F, plus typical surges.
  
- n. Dimensions and Weights of insulated HEAT-TITE piping and fittings are as shown below.

<u>SCHEDULE</u>	<u>PIPE SIZE</u>	<u>INSULATION THICKNESS</u>	<u>WT. (LBS/FT)</u>
80	2	.92	105.6
80	2	1.20	209.4
80	4	1.67	316.8
80	6	1.59	531.8
80	8	1.57	781.8
80	10	1.49	1028.2



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80                      12                      1.38                      1416.0

3.      Chilled Water Piping:

- a.      KOOL-KORE shall be used for chilled water service, using a rubber ring jointing method.
  
- b.      PVC Carrier Pipe:              Carrier pipe shall be Polyvinyl Chloride (PVC) 160 psi pipe - SDR 26 in accordance with ASTM D2241. Pipe shall be extruded from clean, virgin approved class 12454A PVC compound conforming to ASTM D1784.
  
- c.      PVC Casing Pipe:              The PVC casing pipe shall be of virgin PVC resin meeting the minimum classification requirements of ASTM D1784. The thickness shall be as shown on the following pages.
  
- d.      Rubber Sealing Rings:          Sealing rings for the PVC carrier pipe shall be a molded solid compression type rubber compound suitable for the service and pressure of the system.
  
- e.      Rubber End Seals:              End seals for insulated KOOL-KORE shall be molded rubber with a compression type seal.
  
- f.      Polyurethane Foam Insulation:      Polyurethane foam insulation shall meet the following specifications:

Type:    Two component urethane

Compressive Strength:                      25 psi parallel min at 5% comp

Shrinkage:                                      None at 70 F

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Free Rise Density:	1.5 to 2.5 lbs / cu. ft.
Aged AK@: (70 F - 72 hrs)	0.140 BTU per inch, per hour, per degree Fahrenheit, per s.f.
Closed Cell Content:	90%

Insulation Concentricity:

Carrier Pipe shall be concentric to casing pipe. The allowable maximum deviation from center line of carrier pipe shall be plus or minus 1/4 inch at the casing center point and plus or minus 1/16 inch at the end seals.

- g. Wall Penetration Sleeves: Provide where piping passes through masonry or concrete walls, floors, and roofs. Sleeves in outside walls below and above grade, in floor, or in roof slabs, shall be schedule 40 or standard weight coated black steel pipe. Space between piping or insulation casing, and the sleeve shall be sufficient to allow proper water tight sealing, but never less than 2". Sleeves shall be held securely in proper position and location during construction. Sleeves shall be of sufficient length to pass through entire thickness of walls or slabs. Sleeves in floor slabs shall extend 2 inches above the finished floor. In existing concrete manholes or building, wall penetrations may be made using the Acore drilling@ methods providing proper care is taken to drill the holes to the size needed and square to the line of the pipe.
- h. Wall Penetration Seals: All wall penetrations shall be sealed to prevent water from entering the building or manhole. The sealing material shall be as specified by the engineer.
- i. Insulation: Thickness of insulation for KOOL-KORE pipe shall be as shown below.
- j. Temperature and Pressure: The KOOL-KORE piping system and all of its

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components are designed to operate at temperatures up to 70 F at 160 psig or at reduced pressures for elevated temperatures, as follows:

<u>TEMP. F</u>	<u>PRESSURE psig</u>
80	144
90	121
100	102
110	80
120	64
130	49

- k. Dimensions and weights of insulated KOOL-KORE piping systems are as shown below.

<u>SCHEDULE</u>	<u>PIPE SIZE</u>	<u>INSULATION THICKNESS</u>	<u>WT. (LBS/FT)</u>
40	4"	1.67	143

**2.02 PIPE SPECIALTIES**

**A. Escutcheon Plates:**

1. Escutcheon plates: Chromium-plated, not less than 20 gauge steel, split pattern,

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set screws on ceiling plates, spring clips on others, sized to fit over insulation and to cover sleeves.

2. For exposed piping in flush sleeves in finished areas: Grinnell Fig. 10, F & S Fig. 602, Perfection Fig. 10.
3. For exposed piping where sleeves extend beyond penetrated surface, provide deep pattern type.

**B. Pump Suction Diffuser:**

1. Cast iron body, steel or cast iron outlet guide vanes, removable stainless steel strainer and fine mesh brass start-up strainer.

**C. Triple Duty Valve:**

1. Angle or straight type combination shut-off, balancing, non-slam check valve with cast iron body, bronze disc and seat, and stainless steel valve stem and spring.
2. Install valve with ample clearance for valve stem and service.

**D. Air Purger:**

1. Steel or cast iron body, flanged connections for horizontal, in-line installation, and tapings for vent and drain connections.

**E. Air Vents:**

1. Automatic Air Vents shall be Armstrong Model AAE-750, or equal, installed in a vertical position with a gate valve to isolate vent for service or replacement.
2. Manual Air Vents shall be Armstrong No. 72, or equal up to 75 psig operating pressure or lever handle brass cock rated for operating pressure. Provide brass goose neck termination.

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F. Automatic Fill Valve:

Armstrong Model RD or HRD or equal as required for operating pressure of installation.

G. Expansion Tank:

Taco Model CAX or equal ASME precharged bladder expansion tank stamped 125 psig working pressure with replaceable bladder, rated for 240-degrees F. at the tank and air charging valve to facilitate precharge pressure to meet actual system conditions.

H. Backflow Preventer: (Make-up Water System)

1. Watts Model 9D or equal, tested and certified under A.S.S.E. Standard 1012-1980 or CSA Standard B64.3.

I. Water Pressure Reducing Valve (Make-up water system) - Armstrong RD-40, or equal bronze construction with built-in strainer.

J. Strainers shall be Y-pattern type with cast iron body. Strainers shall have removable 316 stainless steel or monel screens and shall have perforations to provide a net free area through the screen of at least 3 times that of the entering pipe. Perforations shall be 1/8" diameter for chilled, hot, and make-up water service. Strainers 2-1/2" and larger shall be provided with a plugged gate valve and nipple the full size of the strainer blowdown outlet. Blowdown outlets shall be located at the low point of the strainer. Strainers 2" and smaller shall be threaded. Strainers 2-1/2" and larger shall be flanged.

K. Flexible Pipe Connections: Flexible pipe connections shall be stainless steel corrugated metal hose with high tensile stainless steel wire braid for ferrous pipe and bronze corrugated metal hose with high tensile bronze wire braid with copper pipe. Connections for pipe 2-1/2" and smaller shall be male pipe thread, and for pipe 3" and larger shall be 150 lb. flange ends. Minimum pressure rating shall be 150 psig wwp. Rubber hose connectors for closed loop heat pumps will be furnished with the heat pump units.

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**2.03 ACCESS PANELS - BUILDING**

- A. Flush, hinged door, locking type steel access panel and frame. Access panels shall be UL fire rated same as structure in which installed.
- B. Panel size 24" x 24" unless indicated otherwise on drawings.
- C. Frame styles specifically designed for setting in bare masonry, plastered surfaces, dry wall, or in acoustical tile as required.

**2.04 CORROSION RESISTANT COATINGS**

- A. Acceptable manufacturers: Koppers Bitumastic Super Service Black, Royston Laboratories A-51, Johns-Manville ATranstex V20".

**2.05 PIPE HANGERS AND SUPPORTS**

- A. Products manufactured in accordance with MSS SP58 and conforming to Federal Specification VVWH171e, MSS SP69, UL203, NFPA13, and NFPA24 are acceptable. The following Grinnell figure numbers are used as a guide.
  - 1. Bare Copper Pipe - Fig. CT-99.
  - 2. Bare Steel Pipe - Fig. 260.
  - 3. Insulated Pipe - Fig. 260 sized to fit over insulation and with properly sized Fig. No. 167 shield.
  - 4. Vertical Pipe - Fig. CT-121 or Fig. 261.
    - a. Bare copper pipe must be isolated from contact with steel riser clamp by rapping with sheet lead or other acceptable material. Fig. CT-121 coated clamp may be used.

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5. Several horizontal pipes in the same plane may be supported on trapeze hangers spaced as required for the smallest pipe.

**2.06 SLEEVES**

- A. Sleeves shall be standard weight steel pipe.
- B. Sleeves shall be of sufficient size for pipe and insulation to pass through.
- C. Exposed sleeves through floors shall project 2" min. above finished floor.
- D. Pro-Set or equal sleeve system may be used in lieu of above.

**2.07 DIELECTRIC COUPLINGS**

- A. Acceptable: Capitol Type CS, Epco FX, and Clearflow Dielectric Waterway.
- B. Description: Screwed ends, dielectric isolating section.

**2.08 VALVES**

- A. General:
  1. All gate and globe valves shall be designed for repacking under pressure when fully opened and shall be equipped with packing suitable for the intended service.
  2. Valves used in copper pipe systems up to and including 3" size shall be similar and equal to those described herein for threaded valves up to 2" size.
  3. Face to face and end to end dimensions of valves shall conform to ANSI B16.10.
  4. Insofar as possible, all valves of the same type shall be of the same manufacturer.
- B. Gate Valves:

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1. Valves 2" and smaller shall be bronze body, solid wedge, rising stem, union bonnet, equal to Crane 428UB, Jenkins 4TU, Milwaukee 1152 or Stockham B-105.
  2. Valves 2-1/2" and larger shall be flanged and iron body, bronze trim, OS&Y equal to Crane 465-1/2, Jenkins 651-C, Milwaukee F-2885 or Stockham G-623.
- C. Globe Valves:
1. Valves 2" and smaller shall be bronze body, union bonnet, integral seat, renewable disc, equal to Crane 7, Jenkins 106A, Milwaukee 590, or Stockham B-22.
  2. Valves 2-1/2" and larger shall be iron body, composition disc, flanged ends, bolted bonnet, bronze mounted, equal to Crane 351, Jenkins 613C, Milwaukee F-2981, or Stockham G-512.
- D. Check Valves:
1. Valves 2" and smaller shall be bronze body, horizontal swing, Y pattern with removable discs equal to Crane 37, Jenkins 92A, Milwaukee 509, Stockham B-319.
  2. Valves 2-1/2" and larger installed horizontally shall be iron body, bolted bonnet, horizontal swing with removable seat and disc equal to Crane 373, Jenkins 624-C, Milwaukee F-2974, Stockham G-931.
  3. Valves 2-1/2" and larger installed in vertical position shall be iron body, globe type, silent design, bronze mounted with stainless steel spring and flanged end connections equal to Milwaukee 1800, Mueller 105-AP, APCO 600.
- E. Ball Valves:
1. Ball valves shall be 2" and smaller for water and air service and shall have a 2-piece bronze body, teflon seat and brass ball equal to Crane 2180, Jenkins 902-T, Milwaukee BA-200, Stockham S-216-BR-RT. Provide extended handles on insulated piping and memory stop for manual balancing.



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F. Butterfly Valves:

1. Butterfly valves for water piping 2-1/2" and larger shall be lug type with extended neck, cast iron body, bronze alloy disc, stainless steel stem equal to Crane 14, Jenkins 232E, Milwaukee ML-1233-E, Stockham LG711BS3E. Provide lever handles on valves 12" and smaller and gear operators on valves larger than 12".

G. Hose end drain valves shall be gate valves with 3/4" hose thread adapter screwed or soldered into valve.

H. Manual balancing valves, non-calibrated-semi-steel body, neoprene coated, eccentric plug, wrench operator, straightway, memory stop 175 #wog rating.

1. 2" and smaller, screwed ends - Homestead 1512; DeZurik 118S: OIC 811; Milwaukee BBFS100.
2. 2-1/2" and larger, flanged ends - Homestead 1522 and 3" and 4", 1232 larger; DeZurik 118F, Illinois Products Series 5000.

I. Calibrated Balancing Valves - calibrated for flow balancing, pressure tapping takeoffs, positive shut-off valve with memory stop. Valves shall be supplied with preformed Polyurethane insulation cover.

1. 2" and smaller, screwed ends - Armstrong CBVI; Illinois Series 6000.
2. 2-1/2" and larger, flanged ends - Armstrong CBVII; Illinois Series 6000. (Note: Illinois flow measuring device larger than 1-1/4" must be accompanied by balancing valve series 5000.
3. A compatible portable flow measurement meter shall be furnished to the owner at the end of the job.

J. Automatic Flow Control Valves:

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1. Autoflow, Griswold, or equal, pressure compensating flow control valves in one piece configuration consisting of ground joint union and factory-set flow control unit.
2. Valves shall be brass or stainless steel.
3. Valves must be marked to show direction of flow.

**2.09 VIBRATION ISOLATION DEVICES**

- A. Acceptable: Amber / Booth, Consolidated Kinetics, Korfund, Mason, VECO, and Vibration Mountings and Controls, Inc.
- B. Supply all vibration isolation devices from a single manufacturer.
- C. Select vibration isolation equipment to give uniform loading and deflection, according to weight distribution of equipment.
- D. Spring isolation, generally: spring diameter not less than 0.8 of spring operating height. Provide springs with a minimum additional travel to solid equal to 50% of the rated deflection. Select spring with ratio of horizontal spring constant to vertical spring constant between 1 and 2.
- E. Un-housed Spring Type: Provide with leveling bolts for attaching to equipment, vertical resilient limitstops with a minimum clearance of 2" maintained around restraining bolts and between the housing and spring, limit stops out of contact during normal operation. Size for 1" static deflection.
- F. Vibration Hanger: Provide with a steel spring and a double deflecting neoprene element in series. Elastomer element with a minimum static deflection of 1/4"; steel spring static deflection of 1", except for the two isolators nearest the vibrating equipment with a static

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deflection of 1-1/2 times, and equal to, the static deflection of the isolated equipment, respectively. Install with spring element concentric to rod. Isolate hanger rod from steel housing with neoprene bushing.

**2.12 TEST PLUGS**

- A. Universal National, 2" N.P.T. brass body, with neoprene test plug valve insert.
- B. Acceptable Manufacturers: No. 700 Pete=s Plug or equal.

**2.13 PIPING IDENTIFICATION**

- A. General: Install color coded identification and direction markers after completion of painting and thermal insulation work unless otherwise noted, all in accordance with ANSI Standard A13.1, 1975.
- B. Materials: Equal to W.H. Brady Co. cataloged systems. Black stencil.
- C. Locations:
  - 1. Mechanical Equipment Rooms:

Within 18" of each point of entry and exit from all rooms.

Withing 3 feet on each side of each 90-degree elbow, tee, and connection to equipment or vessel.

At not over 20 foot intervals, measured along centerline of pipe.
  - 2. Above Suspended Ceilings:

Within 18 inches of each valve or valve assembly.

At tees, identify both main and branch within 3'-0" of tee.

Within 3 feet of each 90-degree elbow.

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3. Piping Concealed in Chases or Shafts: Identify each pipe visible through access door or panel.

4. Piping exposed in rooms other than Mechanical Equipment Areas:

Omit identification on piping 2 inch size and smaller exposed at connections to equipment or plumbing fixtures.

With the above exception, identify at not less than one point each piping run visible in each room, with identification at not over 20 foot intervals measured along centerline of pipe.

#### 2.14 VALVE IDENTIFICATION

- A. General: Valves shown on drawings except those isolating individual pieces of equipment shall be identified with brass tags and chart listing all valves by numbers. Each valve identification tag shall be 18-gauge polished brass, 1-1/2 inch diameter with service indicated by 1/4 inch, stamped, black-filled letters and valve number indicated by 7/16-inch stamped, black-filled numerals. Tags shall be fastened to valves with meter seals, brass >S= hooks or brass jack chain to permit easy reading.
- B. Identification: Each valve tag shall have an identifying letter designating the system, and an identifying number designating the valve. Identifying letters shall be those utilized in the Legend.
- C. A chart of all valves showing the valve identification number, location, purpose, and / or special information shall be mounted in an aluminum frame under 1/8" sheet plastic and secured to a wall as directed. Valve chart wording and numbering shall be approved prior to fabricating tags.
- D. Manufacturer: Tags shall be as manufactured by W.H. Brady Company, Seton Name Plate Corporation, or Markem Corporation.

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**2.15 NAMEPLATES**

A. General: Provide for all equipment, motor starters, remote push-button stations, insertion type thermostats, remote bulb thermometers, filter gauges, remote pressure gauges, fans, pumps, equipment, and panel mounted controls. Submit identification number and wording review by engineer. b

B. Designation: The name of each piece of equipment or usage shall be etched in 1/4" maximum, 1/8" minimum high letters and mounted on or adjacent to piece of equipment.

C. Type: White core black or red Bakelite secured with epoxy glue.

**2.16 MOTORS**

Provide motors for all equipment furnished under Mechanical Sections unless otherwise specified. Motors shall operate using electrical characteristics as shown on the electrical drawings and as specified. Motors shall be Louis-Allis, Gould, Westinghouse, General Electric, or Emerson, except where furnished as part of packaged equipment.

Standards: Except where otherwise specified, motors shall be manufactured according to NEMA Standards. They shall be NEMA Design B, Insulation Class B or F, 40-degrees C. ambient and 40-degrees C. rise. Hermetic motors shall be manufactured according to ARI Standards. Motors 2 HP and larger shall be high efficiency, similar to Gould E plus.

A. Sizes:

1. Motors with standard NEMA Electrical characteristics shall be selected for the design brake horsepower without overload current at rated voltage.

2. Motors with special electrical characteristics, such as hermetic refrigeration motors, shall be selected to produce the brake horsepower required for the specified load without overload current at rated voltage.

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- B. Enclosures: Motor enclosures shall be open drip-proof, except where otherwise specified. Motors for equipment installed where subject to weather shall be fan cooled, totally enclosed, weatherproof type.
- C. Nameplates: Motors shall have a nameplate showing the specified nominal system voltage as nameplate rated voltage. Each motor shall be guaranteed to operate satisfactorily at the specified nominal system voltage, plus or minus 10%.

**2.17 STARTERS**

- A. Furnish all starters (except where included in motor controls centers), contractors, motor switches, and start-stop stations. Where located inside the building, starter and motor enclosures shall be NEMA type 1 general purpose, and where located outside the building, shall be NEMA type 3R except where otherwise noted on the drawings. See Electrical Division for motor control centers.
- B. Three phase motors shall be provided with magnetic across-the-line starters with overload protection on each phase. Furnish starters with hand-off-automatic selector switch and reset button in cover.
- C. Single phase motors less than 2 HP shall be provided with relays or switches with overload protection.
- D. Equipment furnished with factory installed motor starter units shall also be equipped with individual motor branch circuit protective devices interconnected on their line sides to lugs sized to receive a feeder with minimum ampacity of 125% of total connected load.
- E. Starters shall be Allen Bradley, Cutler Hammer, Square-D, General Electric, Westinghouse, Jocelyn Clark, or equal.

**2.18 STEEL EQUIPMENT BASES AND SUPPORTS:**

- A. Fabricate from steel structural shapes by welding. Where members must be removable, assemble with bolted joints.

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- B. Form corners in angle frames with joints mitered, welded, and ground smooth.
- C. Finish steel bases and supports in 2-part rust resistive oil paint system with primer and top coat to light gray color.

**PART 3 - EXECUTION**

**3.01 SLEEVES**

- A. Sleeves shall be spaced sufficient distance from adjacent walls and other sleeves so that insulation, floor, wall, and ceiling plates may be installed without cutting insulation or plates.
- B. Sleeves through slabs and outside walls below grade shall be caulked water-proof. Caulk other sleeves in floor slabs with non-shrink grout or concrete.
- C. Piping passing under column footings, or under or through wall footings, foundations or retaining walls shall be provided with a relieving arch, or an iron pipe sleeve two pipe sizes greater than the pipe passing through.
- D. Provide sleeves for piping passing through masonry walls, partitions, floors, and roofs except for cast iron piping which may be built into masonry walls and partitions.
- E. Cut wall sleeves full thickness of walls.
- F. Where pipes passing through sleeves are to be covered, size sleeves large enough to allow for full thickness covering.
- G. Omit pipe sleeves in concrete slabs on grade.
- H. Provide sleeve lay-out for slabs above grade, including roof, for approval by structural engineer and architect showing location and size before slabs are formed.

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- I. Sleeve system such as Pro-Set or equal shall be installed in accordance with manufacturer's recommendations.
- J. Annular space between sleeve and pipe shall be packed with approved fire stopping material. See Fire Stopping in Section 15010.
- K. Provide sleeves on thermally expandable piping penetrations through fire or smoke rated gypsum board construction partitions. The sleeves shall extend a minimum of 3" on either side of the partition and the annular space shall be filled with a fire stopping material in such a way as to maintain a fire endurance rating equivalent to that of the adjacent wall.
- L. Isolate non-ferrous piping from slab on grade with armaflex or equal insulation .
- M. Piping penetrations made AFTER installation of wall shall be cored with a coring machine. Block shall not be knocked out with a hammer.

**3.02 SUPPORT OF PIPING**

- A. Support steel piping 1" and smaller on centers not more than 8' apart. Support piping larger than 1" on centers not more than 10' apart.
- B. Support copper tubing 1-1/4" or larger size not more than 10' apart. Support copper tubing in sizes 1" and smaller not more than 6' apart.
- C. Support soil, waste, and vent stacks and inside downspouts at the base by means of heavy hangers or riser clamps close to the bottom of the stack.
- D. Support each horizontal length of cast iron pipe, not counting the fitting, not exceeding 10'-0" on centers.
- E. Support all piping within 1' of each change in direction and at each branch connection.
- F. Provide pipe hangers with rods and supports proportioned to the actual size of pipe supported



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with allowance for weight of insulation and contents.

- G. Support hot and cold water plumbing piping in spaces back of plumbing fixtures with heavy duty ABS brackets and u-bolts secured to cast iron stacks.
- H. Provide insulation protectors for insulated piping supported on gang or clevis hangers.
- I. Do not penetrate exterior walls of the building below grade with support bolts.
- J. Do not run piping over or within 3'-6" of electrical switchgear or panelboards in mechanical spaces. No piping is permitted in space dedicated to electrical equipment rooms.
- K. Condensate drain piping shall be pitched in the direction of flow not less than 1/4" per foot.
- L. Provide strainer ahead of each pump suction, trap, and automatic valve.
- M. Provide unions in piping at valves and equipment connections.
  - 1. Screwed Piping - Malleable iron, ground joint, brass seated, 2" pipe size and smaller.
  - 2. Welded Piping - Flanged with same gaskets as at pipe fittings, 2-1/2" pipe size and larger.
- N. Bed body of piping underground on solid ground.
- O. Install air piping with slope of 1" fall per 40' toward receiver of blow off point.
- P. Provide vibration isolation device on first three pipe hangers from rotating mechanical equipment over one horsepower.
- Q. Vertical piping shall be supported at each floor. Riser clamp must rest firmly on floor - not on sleeve.
- R. Perforated strap hanger or similar material will not be permitted.

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3.03 PROCEDURES FOR PIPE JOINTS

A. Threaded Pipe Connections:

1. Ends of pipe shall be cleaned and reamed.
2. Joints shall be made with pipe thread lubricant suitable for service intended, applied to male threads only.

B. Soldering of Pipe:

1. Ends of pipe shall be cleaned with sand cloth or wire brush.
2. Flux shall be evenly applied to both pipe end and fittings. Flux shall be of type recommended by its manufacturer for the type of solder used. Brazing flux shall be used for solder or 1000-degrees F. or higher melting point.
3. Solder shall completely fill socket of joints. **Do not back up joints with solder dissimilar to that used in joints.**

C. Mechanically Formed Tee Connections:

1. Mechanically extracted collars shall be formed in a continuous operation consisting of drilling a pilot hole and drawing out the tube surface to form a collar having a height of not less than three times the thickness of the tube wall. The collaring device shall be fully adjustable as to insure proper tolerance and complete uniformity of the joint.
2. The joining branch tube shall be notched and dimpled in a single process so as to set the proper penetration of the branch tube into the fitting to assure a free flow joint.
3. All joints shall be brazed in accordance with the Copper Development Association Copper Tube Handbook using B-cup series filler metal. Note: Soft soldered joints will

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not be permitted.

4. All mechanically formed branch collars shall be as approved by local National Standard Plumbing Code, B.O.C.A., I.A.M.P.C., or S.B.C.C.

D. Cast Iron Pipe - Hub and Spigot: Joint shall be firmly packed with white oakum and filled with molten lead not less than one inch (1") deep. Joints shall be well caulked. For gasketed joints, hub, spigot, and gasket manufacturer to prevent damage and facilitate joining.

E. Cast Iron Pipe - No Hub: Couplings shall be used to join pipe in accordance with pipe manufacturer's recommendation and shall be installed using torque wrench made for this purpose. Vent piping shall be joined by standard no-hub couplings. Soil, waste, and rainwater piping shall be joined with heavy duty, Husky or Tyler, no-hub couplings.

### 3.04 UNDERGROUND PIPING

A. Underground ferrous piping unless noted otherwise shall have factory applied corrosion resistant coating. Fittings and weld joints shall be coated with product specified here-in.

### 3.05 UNIONS

A. Provide unions at connections to valves and equipment to allow dismantling of pipe connections without cutting pipe.

B. Flanged connections are considered as unions.

### 3.06 REDUCERS

A. Use eccentric reducers for all pipe size changes in horizontal straight thru piping 1 1/4" and larger.

B. Eccentric Reducers

1. Reducers shall be installed with flat on top in chilled water and hot water piping

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systems.

2. Reducers shall be installed with flat on bottom in steam piping.

C. Concentric reducers shall be used only in vertical piping.

### 3.07 INSTALLATION OF INSTRUMENTATION

A. Provide water pressure gauges and gauge manifolds, gauge connection points, thermometers and wells, test wells, and instrument ports in locations specified or indicated on the drawings.

B. Mount instruments in locations and positions to give accurate reading of the measured condition and to be readable from the floor. Locate pairs of instruments to allow reading of both from same point.

C. Mount instruments for reading pressure drops with taps at points for which published pressure drop data are available.

D. Locate test wells with bore more than 30-degrees above horizontal to permit retention of heat transfer material. Locate test wells at chillers to allow use of glass thermometers up to 24" long.

E. Select wells for thermometers in piping with 3-1/2" stems for 6" and smaller piping and 6" stems for 8" and larger piping, with extension necks of length to extend clear of insulation.

F. Instrument Locations:

1. Where indicated on the drawings.

G. Calibrate and adjust instruments after installation. Set up air filter gauges for clean filter pressure drop.

H. Mount pressure and temperature measuring stations in side of tee or in coupling on large

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pipe.

**3.08 TESTING**

A. All piping shall be tested to the pressure and for the period of time listed, and shall hold the specified pressures at the low point of the system for the specified length of time without perceptible loss of pressure or leakage.

1. Space Heating, Chilled Water, Hot Water, Compressed Air, Cold Water, Domestic Hot Water, and Hot Water Circulation Piping: One hundred twenty-five pounds hydrostatic pressure for two hours (125 psig - 2 hours).

2. Soil, Waste, and Vent Piping: A water test shall be applied to the system in sections. Each opening shall be tightly plugged except the highest opening of the sections, at least the upper ten feet of the preceding section shall be retested so that all but uppermost ten feet of the system shall have been submitted to a test of not less than 10' of water. The water level shall remain constant for not less than 15 minutes; the system shall be tight at all points.

3. Compressed Air Piping: 175 PSIG hydrostatic pressure for two hours.

4. Gas Piping - fifty pounds of air pressure for one hour. In addition each joint and connection shall receive a soap bubble test.

5. Correct or replace items shown by test to be defective and retest to assure tightness.

**3.09 CLEANING**

A. All water piping shall be thoroughly flushed. All strainers and aerators shall be cleaned after flush.

B. After cleaning, fill systems with water, vent air from piping and equipment, start pumps and verify flow.

**3.10 DISINFECTIONS OF PIPING**

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A. All domestic water supply lines shall be disinfected BEFORE THEY ARE PLACED IN OPERATION. The system shall be filled with a chlorinated water solution containing not less than fifty (50) parts per million of chlorine solution. Following a contact period of not less than twenty-four (24) hours, the chlorinated water shall be flushed from the system with clear water until the residual chlorine content is not greater than two-tenths (0.2) parts per million.

B. Contractor shall submit to the Architect, in triplicate a letter of certification from an independent Testing Lab acceptable to the Georgia Department of Public Health stating that above disinfection procedure has been completed satisfactorily. b

**3.11 DIELECTRIC CONNECTIONS**

A. Use dielectric couplings to join pipe of dissimilar metals.

**3.12 INSTALLATION OF STEEL EQUIPMENT BASES AND SUPPORTS**

A. Establish base location, coordinate for 4" housekeeping pad under each base, anchor base to pad.

B. Suspended Equipment

1. Attach steel members to structure over suspension points on equipment.
2. Install hanger rods and bolts at suspension points, attached to steel members.
3. Mount equipment with rods and bolts to suspension points.
4. Adjust hanger rods and bolts to make equipment level.
5. Make screwed attachments secure by double-nutting.

C. Coordinate installation of bases and supports with vibration isolation requirements where required.

**3.13 PUMP SUCTION DIFFUSERS AND STRAINERS**

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- A. Contractor to furnish and install pipe support leg positioned to relieve any stress on pumps.
- B. Brass start-up strainer shall be removed after flush and reasonable running period and before system balancing procedure.
- C. Allow ample space for removal and service.

**3.14 VALVES**

- A. All gate, globe, butterfly, and ball valves shall be installed with stems above the horizontal position.

**3.15 AIR VENTS**

- A. Automatic Air Vents shall be installed on Air Purger and as indicated on plans. Manual Air Vents shall be installed at all high points in piping, at all coils and as required for purging system whether shown or not.
- B. Automatic air vents shall be piped to drain.
- C. Install a 1/4" copper gooseneck on manual air vents.

**3.16** Adjust pressure reducing valves serving compression tanks to maintain between 5 and 10 PSIG at highest point in the system. **b**

**3.17 VENT PIPING**

- A. Provide vent piping from the relief opening of each gas pressure regulator and gas pressure switch in the boiler gas trains to a point outside the building at least 10' above finished grade, and at least 5' from any building opening. The vent connection to each regulator or switch shall be increased when 2 or more appliances have been connected so that the common vent will be equal or greater than the sum of the cross sectional areas of all individual vents involved. The common vent shall be a minimum of 3/4" size. Vents from regulators in high pressure gas piping, above 2@ psig, shall each be run independently to the exterior.

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Terminate vent lines with an OPW 113 flash arrestor.

END OF SECTION





**SECTION 23 06 30**  
**HEATING, VENTILATION & AIR CONDITIONING**

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**PART 2-PRODUCTS**

2.01 Air Conditioning Unit:

- A. Unit shall have factory assembled, piped, internally wired and fully charged. All units shall be designed to operate at outdoor ambient temperatures as high as 100 degrees F. Units certified by ARI Standard 210 and 270. National Rating Standard of the Air Conditioning and Refrigeration Institute. heating/Cooling units design is certified by American Gas Association (A.G.A.) specifically for outdoor applications using propane or natural gas. All cooling units are Underwriter=s Laboratories listed. All units shall be designed for indoor installation. Units have welded shell, 3600 RPM compressors.
- B. Casing: All access panels are gasketed and provided with fasteners and handles. One inch, one pound density foil-faced glass fiber insulatin is on heat exchanger section. Same composition mat-faced insulatioon is in evaporator section.
- C. Refrigeration Controls: Refrigeration controls include condenser fan, evaporator fan and compressor contactors, and 24 volt transformer. Safety controls include winding thermostat and compressor overloads. Cycle guard prevents unit cycling on overloads and safety controls to be reset at thermostat inside the building. Each circuit of the unit has a separate set of refrigeration controls.
- D. Compressor: All units have welded shell hermetic compressors, 3600 RPM. Crankcase heaters shall be required on all compressors.
- E. Evaporator Coil: Units have a 2-row coil. All coils have seamless copper tubing of 3/8" OD, mechanically bonded to heavy duty aluminum fins. Factory pressure and lead tested at 300 PSIG. Expansion valves standard.
- F. Drain Pan: Evaporator pan internally sealed insulated. Threaded drain connection in evaporator section.
- G. Condenser Coil: 5-ton units have a 2-row coil. P:rimary surface 3/8" OD seamless copper tube. The secondary surface is mechanically bonded to heavy duty aluminum fins. Factory pressure and leak tested 425 PSIG.
- H. Indoor Air Fans: Belt driven, forward curved, centrifugal type fans equipped with adjustable motor sheave standard. The motor is thermally overload protected. Permanently lubricated fan motor bearings. Motor/fan assembly completely isolated from unit with rubber mounts.
- I. Condenser Fans: Direct drive, statically and dynamically balanced propeller fans. Weather-proof fan motors UL listed for outdoor use. Units have built in thermal overload protection. Permanently lubricated motor.
- J. Heat Exchanger: Use corrosion resistant embossed, formed and seamed 18 gauge aluminum steel. Factory tested for gas leaks. Stress relieved, free floating design. Located upstream of cooling coil.

2.02 Split-System Heat Pump Units: (Open)

2.03 Indoor Section: (Open)

2.04 REFRIGERATION PIPING

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- A. Refrigeration piping shall be seamless copper tubing, dehydrated type AACR, @ with wrought copper long radius elbows, made up with sweat type silver solder joints. Vibration eliminator pipes where recommended by the compressor manufacturer or where required to prevent transmission of vibration shall be of the bellows type, with bradied bronze wier protection. Refrigerant pipe design and sizes shall be in strict conformance to the recommendations of the equipment manufacturer, and to the Equipment Standards of the Air Conditioning and Refrigeration Institute, Inc., except that Freon suction risers shall be for a gas velocity not less than 2,000 feet per minute.
- B. Oil lift traps shall be required at the base of all vertical riser pipes or as recommended by the manufacturer.
- C. Refrigeration pipe insulation: The suction piping shall be insulated with 3/4" thick Armstrong Armiflex, foam rubber pipe insulation.

**2.05 REFRIGERANT AND OIL**

- A. The entire refrigerant charge shall be of the correct amount of pounds, as recommended by the system manufacturer. The Contractor shall be required to perform all pressure test, vacuum test, halide torch test, and operation test. The Contractor shall guarantee the refrigeration piping system free from leaks for one year. Any refrigeration leaks which are detected within the warranty period shall be repaired by the Contractor at no additional charge to the owner. Any refrigerant which leaks out shall be replaced at the time of repair.
- B. Each refrigeration system shall be furnished with a complete charge of lubricating oil for the compressor crankcase. The oil shall be of the type recommended by the compressor manufacturer.

**2.06 SUCTION LINE ARMAFLEX INSULATION:**

- A. Rubber Pipe Insulation: Shall be Armstrong Armaflex or approved equal condensate drain pipe-1/2" thick.  
Refrigeration Suction Pipe: 3/4" thick. As much of the insulation as possible shall be slipped on to the piping as the piping is being connected in order to keep from cutting the insulation. All butt ends and any necessary longitudinal joints shall be sealed with rubber based adhesive.

**2.07 ABOVE GROUND DUCT WORK**

- A. (A/C Ducts) All duct work supply, return and exhaust except flexible run-outs shall be galvanized steel (cross break on all sides). All duct work shall be new and securely suspended and hung as per SMACNA Manual. All duct work shall be concealed from view above ceiling. Follow good sheet metal practice as outlined Chapter 1 of 1972 ASHRAE System 1970 (Forced Air Systems).

**END OF SECTION**

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PART 1 - GENERAL

1.01 This section covers basic electrical materials and wiring, and all items of equipment not otherwise specified under other sections of the Specifications.

1.02 **APPLIANCE AND EQUIPMENT CONNECTIONS**

A. Provide PVC insulated flexible cord sets for all cord and plug connected contract building appliances and equipment. Cords shall be sized in accordance with electrical circuits indicated on the drawings. Multiple conductor cords shall be type ASO@ cable with PVC jacket and green insulated ground conductor.

1.03 **MOTORS**

A. Motors except where specified herein, shall be furnished under other sections of the Specifications. Confirm motor locations.

B. Motors shall be of the voltage and phase characteristics as shown on the drawings.

C. The horsepower ratings indicated are for guidance and do not limit the equipment size. When electrically driven equipment furnished under other sections of these Specifications differs from the contemplated design, the Contractor shall be responsible for the necessary adjustments to the wiring, disconnect devices, and branch circuit protection to accommodate the equipment installed.

1.04 **MOTOR WIRING**

A. Furnish and install power wiring to motors and mechanical equipment. Wiring into motor or equipment terminals shall be complete with connections through associated disconnect switches, and motor starters, including branch circuit power line controlling devices.

B. Receive, store, and install individually mounted starters and controllers for motors.

C. Wiring shall be in conduit, with a final connection to rotating equipment made through a

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section of PVC jacketed flexible conduit.

D. Multi-speed, reversible, and reduced voltage start motors shall be connected as recommended by equipment manufacturer.

E. Motors shall be grounded as specified under AGrounding System@.

**1.05 CONTROL WIRING**

A. Control wiring and empty conduits for control wiring to be furnished under this section shall be furnished only to the extent indicated on the electrical drawings.

B. Control wiring is defined as that wiring which provides connections between control circuit elements and does not provide the power circuit into motor or heating equipment terminals. Where a control device, such as push-button, thermostat, firestat, is to be installed in the branch circuit power lines, these devices shall be received, stored, and installed as indicated the drawings and called for under AMotor Wiring@ and AElectric Heaters@

C. Coordinate the installation of branch circuit power line control devices with requirements in other sections of the Specifications.

**1.06 RATED PENETRATIONS**

A. All rated wall and floor penetrations shall be sealed with a UL listed sealant to maintain the rating.

**PART 2 - PRODUCTS**

**2.01 PLYWOOD BACKBOARDS**

A. Provide flame retardant plywood backboards for distribution equipment surface mounted in equipment areas such as mechanical rooms, electrical closets, and equipment rooms.

B. Backboards shall be minimum 3/4" thick and sized to accommodate equipment indicated on

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the drawings.

- C. Secure backboards to the building structure and paint with two coats of fire resistant flat black Duron paint.

**2.02 DISCONNECT SWITCHES**

- A. Disconnect switches shall be quick-make, quick-break Underwriters= labeled Heavy Duty safety switches. Switch ratings shall be for the applied voltage and current.
- B. Disconnect switch enclosures:
  - 1. For indoor - NEMA 1 general purpose.
  - 2. For outdoor - NEMA 3R raintight.
- C. Manufacturers: General electric, Westinghouse, ITE, Square D.
- D. Designate with permanent labels, the maximum allowable fusing capacity for fusible switches that are applied with conductors rated less than the switch rating.
- E. Disconnects for 120V motors 2 HP or less shall be horsepower rated toggle switches in steel outlet boxes.

**2.02 FUSES**

- A. Install fuses in fusible protective devices.
- B. Provide NEC, dual element time-delay, or current limiting, fuses for specific applications only where indicated on the drawings.
- C. Fuse specification - See Section 16181.

**2.03 LABELS**

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- A. Provide labels on the outside face of panelboards, switchboards, disconnect switches, motor starters, transfer switch, and contactors.
  
- B. Labels shall be a micarta nameplate with 2" high white letters. Nameplates shall be red on emergency equipment and black on normal equipment. Secure labels with screws or pop-rivets.

**PART 3 - EXECUTION**

**3.01 UTILITY COMPANY COORDINATION**

- A. Coordinate with the electrical Utility and verify location and orientation of service equipment and associated metering equipment.
  
- B. Provide and install all materials designated by the Electrical Utility to be furnished by ACustomer@. This may include but not be limited to, compression lugs for transformer secondary connection, concrete pad for serria transformer, grounding material, meter base and empty conduits for primary lines.

**3.02 BRANCH CIRCUITS**

- A. Provide dedicated neutral for any branch circuit serving dimmable lighting fixtures and copying machines.

**END OF SECTION**

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CONDUIT

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PART 1 - GENERAL

1.01 GENERAL

1.01 Where the word “conduit” is used in this specification, it shall mean thick wall rigid metal conduit, rigid non-metal conduit or electrical metallic tubing. Where the words “flexible conduit” are used, it shall mean jacketed liquid-tight or unjacketed flexible metal conduit.

1.02 Conduits shall bear the Underwriters Laboratories listing mark.

1.03 Conduits for branch circuit wiring shall be 2" or larger.

PART 2 -- PRODUCTS

2.01 TUBULAR CONDUIT

A. Non-metallic conduit shall be Schedule 40, 90-degrees C. Rated polyvinyl chloride, UL listed for underground burial.

B. Metallic conduit shall be galvanized steel.

C. Intermediate Metal Conduit (IMC) may be used in lieu of rigid metal conduit. IMC shall be hot-dipped galvanized steel manufactured in accordance with UL Standard #6 or # 1242.

D. Flexible Conduit:

1. Flexible conduit shall be a minimum length of 8" and at least six times the trade diameter for conduit ½" or larger.

2. Flexible conduit for connections to lighting fixtures shall be 3/8" diameter and minimum 48" and a maximum 72" in length, and shall be non-jacketed with a continuous strip cold rolled galvanized steel core.

3. Liquidtight flexible conduit shall be a minimum 2" diameter.



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4. Liquidtight and non-jacketed flexible conduit shall be manufactured by Electric-Flex, Anaconda or Flexi-guard.

E. Steel conduit shall be manufactured by Republic, Wheatland, Allied, Triangle, or Steel duct.

F. PVC conduit shall be manufactured by Carlon, Sedco, Contex, or Certainteed.

2.02 FITTINGS

A. Where electrical metallic tubing is used indoors, connectors and couplings shall be steel thread set screw. Make all joint connections tight for a continuous low impedance ground return.

B. Where electrical metallic tubing is used outdoors, connectors and couplings shall be UL listed rain tight, steel compression type. Connectors shall be complete with insulated throats.

C. Cast or split threadless couplings are not acceptable.

D. Connectors and couplings for rigid steel or intermediate metal conduit shall be steel threaded type.

E. Conduit passing through concrete or masonry walls underground shall be complete with watertight wall seal gland fittings, OZ type WSK. Ground bushings shall be OZ type BLG.

F. Connectors and couplings shall be manufactured by Thomas and Betts, Efcor, Raco, Appleton, Steel City, ETP, or Erickson.

G. Flexible Conduit:

1. Connectors for flexible conduits shall be UL listed with insulated throats.

2. Connectors for liquidtight conduit shall be compression type, made of steel and provided with O-ring. Connectors metal ferrule shall provide positive ground circuit

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continuity.

3. Connectors for non-jacketed flexible conduit shall be squeeze-type and made of malleable iron.

4. Flexible conduit connectors manufacturers shall be Raco, Appleton, Efcor, Thomas and Betts, or Ideal.

H. Where a conduit run crosses a structural expansion joint, provide expansion fitting, OZ type DX. The expansions fitting shall be electrically continuous or the contractor shall install a bonding jumper across it.

PART 3 - EXECUTION

3.01 WORKMANSHIP

A. Conduit bends and offsets shall be made with conduit hickey or conduit bending machine. Crushed or deformed conduits shall not be installed.

B. Exposed conduits shall be run parallel or at right angles to adjacent walls.

C. Prevent lodgement of plaster, dirt or trash in conduits, boxes and fittings.

D. Store conduit in racks above ground.

3.02 INSTALLATION

A. Provide unjacketed flexible conduit connections to lighting fixtures in lift-out type ceiling to an outlet box located above the ceiling.

B. Provide liquidtight flexible conduit for short final connections (3' maximum) to rotating or vibrating machinery and equipment including transformers.

C. Provide non-metallic (PVC) conduits for outdoor lighting branch circuit wiring, secondary

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service conductors between power company transformer and main switchboard, and at other location where specifically indicated on drawings.

- D. Concealed Conduit:
1. Conduits shall be concealed except as noted or shown otherwise.
  2. Concealed conduits shall be above ceiling, in building walls, or in floor construction.
  3. Concealed conduits in building walls shall be installed vertically except when:
    - a. The wall is or framing stud and gypsum board construction, and
    - b. Adjacent outlet boxes are within 10' of each other; and
    - c. Outlets are in common wall (do not turn corners; and
    - d. Removing the horizontal conduit will not affect upstream or downstream devices ( run shall be a dead end), and
    - e. The total horizontal run does not exceed 20',
    - f. A maximum of four horizontally connected outlet boxes are on each vertical conduit.
- E. Conduit risers in masonry-block walls shall be installed before walls are built and run vertically in walls. Where existing block walls are to have conduit, run in furring space before gypsum board is installed.
- F. Conduits shall be grounded as provided by the National Electrical Code and these specifications. Conduits installed below grade or with non-galvanized male threads shall have threads painted with ALPS Zinc Rich@.
- G. Conduits installed underground or in on-grade floor slabs shall be rigid metal conduit with threaded couplings, except where otherwise noted.
- H. Rigid metal conduit shall be used for all runs likely to be subject to physical injury.
- I. Feeder circuits (panelboards, motor control centers, etc.) shall be rigid metal conduit or intermediate metal conduit.

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J. Conduits run above ceilings shall be supported from the building structure, independent of ceiling system support. Install on bottom of bar joists or structures where practical, otherwise secure conduit above ceilings with threaded rods and hangers. Parallel groups of conduit be supported from a trapeze channel with each conduit secured to the channel with a spring clip device. Supports shall occur on minimum 10 foot centers and within 3 feet of an outlet or junction box.

K. Feeders and branch circuit conduits installed exposed shall be supported from the bar joist or structure. Suspension below bar joist and structure or channel supports is acceptable up to 12"; greater suspension must be approved by the Architect.

L. Conduits installed underground outside building foundations shall be a minimum of 24" below finished grade and shall be encased in 3000 psi concrete envelope with 4" coverage; except conduits for outdoor lighting branch circuit wiring, telephone service, and cable television service, which shall be run unencased direct buried at a minimum depth of 30" below finished grade.

M. Conduit larger than 3/4" installed in ground floor concrete slab shall be covered top and bottom with a minimum of two (2) inches of concrete. Thicken slab by depressing waterproof barrier on gravel to provide minimum cover, or run conduit under the concrete slab and encased in concrete.

N. Conduit installed in structural concrete slabs shall be in accordance with the requirement of the ACI 318-63 Building Code Requirement for Reinforced Concrete@ publications.

O. Exposed conduits below 8' shall be rigid metal conduit. Support conduits on the ceiling or wall by means of the two screw galvanized clamps or trapeze hangers.

P. Empty conduits shall have a Polyolefin line (200 lbs. Strength) pulled into conduit.

Q. Seal unused conduit ends with plastic or metal caps.

R. Elevated slab floor penetrations for conduit shall be provided with sleeves. Sleeves shall extend approximately one inch above finished floor slab and sealed tightly with fire safe

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insulation.

- S. PVC conduit shall not be installed indoors.

END OF SECTION

**SECTION 27 30 00  
VOICE AND DATA COMMUNICATION CABLING**

**CARTER WATKINS ASSOCIATES ARCHITECTS, INC.**  
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**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This section includes furnishing and installing all materials and providing all labor and supervision pertaining to Cat 6 Voice/Data Wiring (2 cables per location) support systems cabling, devices, devices, plates, equipment racks, active components and associated components.
- B. **QUALITY CRITERIA AND STANDARDS**
  - 1. Voice/Data support equipment shall comply with applicable UL, NEC, and NEMA standards and requirements and shall be UL-listed and labeled.

**PART 2 – PRODUCTS**

**2.1 MATERIALS:**

- A. Station jacks, faceplates, and associated components; furnished and installed by Contractor.
- B. Patch panels and type 110/66 punch-down blocks: furnished and installed by Contractor.
- C. Voice/data workstation cable: furnished and installed by Contractor.
- D. Associated materials and components:
  - 1. Backboard: Telephone and data backboards shall be ¾” thick B\_D INT-DEPA plywood. Mount D finish toward wall. The backboard shall be divided so that each zone (voice/data) is clearly separated and marked from one another. The backboard shall be painted with 2 coats of fire-resistant white paint. Unless specifically indicated on the drawings, minimum backboard size shall be 4’ x 8’.
  - 2. Cable support: Provide Cable Treys for all above-ceiling wiring throughout the entire building. Size as required – submit shop drawings for approval.

**PART 3 – EXECUTION**

**3.1 INSTALLATION:**

- A. Installation of Voice/Data workstation cable, station jacks, faceplates, and associated components, rack equipment, patch panels, and punchdown blocks is by the contractor.

**END OF SECTION**

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PART 1 - GENERAL

1.01 SCOPE

**A.** Furnish and install a complete, operable fire alarm system connected to existing system as described herein. All existing Fire Alarm elements shall be reviewed to ensure compliance with new spatial configuration and modified so as to meet the current code. The system shall be wired , connected, and left in first class operating condition.

**B.** The products and installation shall conform to the requirements set forth in the following standards:

1. NFPA 70 ( including article 760 ), current Edition
2. NFPA 72, current Edition
3. NFPA 101, current Edition
4. The IBC International Building Code and IFC International Fire Code as amended and adopted by the local authority.
5. State of Georgia Rules of Safety Fire Commissioner.

1.02 SYSTEM ARCHITECTURE

**A.** The system shall consist of:

1. A complete microprocessor-based non-coded, closed circuit, completely supervised zone indicating fire alarm system to monitor hardwired inputs from normally open contact devices.

2. Capacity:

- a. Eight to thirty-two initiating device circuits with two spares.
- b. Two to six indicating appliance circuits with two spares.
- c. Five to fifteen amp power output.

**B.** Circuit styles shall be NFPA 72 styles as follows:

1. Indicating device circuits: Style B.

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2. Indicating appliance circuits: Style Y.

#### 1.03 SYSTEM INITIATION

- A. System initiation shall occur when any initiating device is in alarm and when any fire suppression system is activated.
- B. Supervisory Condition: An alarm condition for any of the following items shall be considered a supervisory condition which is second priority to a fire alarm condition:
- C. Fire Alarm Condition: An alarm condition for any initiation device except those listed in the previous paragraph shall be considered a fire alarm condition.

#### 1.04 AUTOMATIC EMERGENCY CONTROLS

- A. If a duct-mounted smoke detector is in the alarm condition, the air handling unit serving that duct shall be shutdown and all smoke dampers in that air handling unit system shall close. Provide control modules at locations coordinated with the Division 15 Control. The wiring distance from the control module to the AHU control or damper controls shall not exceed three feet.

#### 1.05 OCCUPANT NOTIFICATION

- A. Upon system initiation, all evacuation signals shall activate. Provide Voice Annunciation, PA System and all requirements per NFPA and local authority.

#### 1.06 FIRE DEPARTMENT NOTIFICATION

- A. Upon system initiation, a fire alarm condition shall cause activation of a supervised signal to notify the local fire department. Coordinate with the fire department and provide the proper city connection circuit whether reverse polarity, local energy, parallel telephone, shunt, or dry contact connection.

#### 1.07 INTEGRITY MONITORING

- A. The system shall contain independently monitored initiation circuits. A fault in any one circuit shall not



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affect any other circuit. The alarm activation of any point shall not prevent the subsequent alarm operation of any other point.

- B. There shall be independently fused indicating appliance circuits for alarm notification devices. Disarrangement circuits of any circuit shall not affect the operation of other circuits.
- C. Ground fault detection on all circuits on either the plus or minus side.
- D. All alarm initiating wiring, signal circuit wiring, annunciator wiring and, control wiring to remote relays shall be monitored for integrity.
- E. The incoming power to the system shall be monitored for power failure. A green Apower on@ LED shall be displayed continuously while incoming power is present.
- F. The Control Panel Modules shall be electrically monitored for module placement and LED burnout.
- G. Any failure in wiring integrity or system disarrangement as described above shall be considered a trouble condition which is third priority.

**1.08 CONTROL PANEL OPERATOR=S INTERFACE**

- A. A control panel shall include an operator=s interface for annunciation and manual controls. The interface shall consist of a LED adjacent to each message.
- B. Under normal condition, the operator=s interface shall display a APOWER ON@ message.
- C. Should an abnormal condition be detected, the appropriate LED ( zone number or trouble ) shall flash. The panel audible signal shall pulse for fire alarm and sound steadily for trouble conditions.
- D. Alarm Silencing: Should the AAlarm Silence@ button be pressed, all audible fire alarm notification appliances shall be deactivated. An override of the automatic fire alarm notification shall be annunciated as a trouble condition.
- E. System Reset

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1. The ASystem Reset@ button shall be used to return the system to its normal state after all abnormal conditions have been remedied.
2. Should an abnormal state continue to exist, then the associated notification and control functions shall not reset.

F. Function Keys, Display of System Detail Information

1. System shall include panel mounted volt meters and ammeters for monitoring battery voltage and battery charge current.
2. The system shall have provisions for disabling and enabling all circuits individually for maintenance or testing purposes. Additionally, when disabled, ground isolation shall be implemented to aid in location and repair of any ground fault conditions.

G. System Trouble Reminder: Should a trouble condition be present within the system and the audible trouble signal silenced, the trouble signal shall resound at preprogrammed time intervals to act as a reminder that the fire alarm system is not 100% operational. Both the time interval and the trouble reminder signal shall be programmable to suit the owner=s application.

1.09 WALK TEST

- A. The system shall be capable of being tested by one person. The panel shall automatically reset itself after the alarm.
- B. The momentary disconnection of an initiating or notification appliance circuit shall be a trouble condition. The panel shall automatically reset itself.
- C. Any momentary opening of an initiating or notification appliances circuit wiring shall cause the alarm notification appliances to sound for 4 seconds to indicate the trouble condition.

1.10 QUALITY ASSURANCE

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- A. Acceptable manufacturers shall be regularly engaged in the manufacture of fire alarm systems at least 5 years and have a fully equipped, factory trained and authorized service organization within 100 miles. Acceptable Manufacturers: Simplex, EST, Pyrotronics.
  
- B. The equipment supplier shall be regularly engaged in the manufacturer or shall be the manufacturer=s authorized representative and shall provide personnel factory trained and approved for installation, certification, final connections, programming, testing, training, warranty service, and maintenance.
  
- C. Service availability: The supplier shall have on hand sufficient spare parts inventory, necessary test and diagnostic equipment, and have a fully equipped service organization capable of guaranteeing response time within 8 hours of emergency service calls, 24 hours a day, 7 days a week to service completed systems. Emergency shall be required for significant loss of coverage.
  
- D. All materials, installation, and workmanship shall be guaranteed against defects for (1) one year from the start up and beneficial use of the system or installation certification, whichever is later.
  
- E. The contractor shall guarantee all wiring and raceways to be free from mechanical or electrical defects for one (1) year from the startup and beneficial use of the system or installation certification, whichever is later.
  
- F. Warranty service for the equipment shall be provided by the manufacture=s factory trained representative during normal working hours, Monday through Friday excluding holidays at no cost to the owner.

**1.11 SUBMITTALS**

- A. In compliance with Division 1 of these specifications, submit for Architect=s review, six (6) copies of the following product data, shop drawings, and other submittals:
  - 1. Specification data sheets on each individual system component clearly indicating the equipment to be supplied and its type, size, rating, style, catalog number, and appearance.
  
  - 2. Complete one-line diagrams showing all equipment and the size, type, and number of all conductors. ( Point to Point Diagrams )

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3. Installation manuals including roughing in drawings, details, and conductor terminations for each component.
4. Calculations clearly showing the required amount of battery reserve needed and the proposed battery capacity.
5. Copies of certificates from the manufacturer indicating supplier=s status as an authorized representative and listing employees factory-trained for the services described in paragraph 1.13B.
6. Voltage drop calculations on worst case notification and signaling line circuits and acceptable limits.

**PART 2 - PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. All equipment shall be new and unused. All components and systems shall be designed for uninterrupted duty. All equipment, materials, devices, and other facilities shall be the best suited for the intended use and shall be the standard product of a single manufacturer.
- B. Provide electrical products which have been listed by Underwriters= Laboratories, INC., which comply with NEMA Standards, and which are approved by Factory Mutual Research. All control equipment is to be listed under U.L. Category UOJZ as a single control unit. A partial listing shall not be acceptable. The systems controls shall be U.L. listed for Power Limited Applications power NEC 760.

**2.02 COMPONENTS**

- A. All Control Panels shall have at least the following components/capacities:
  1. Twenty-four volt dc power sufficient to operate the control panel and its circuits during alarm and still maintain at least two amps of spare capacity. The control panel shall receive 120VAC power ( as noted on the drawings ) from two (2) dedicated circuits.

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2. The system shall be provided with sufficient battery capacity to operate the entire system upon loss of normal 120 VAC power in a normal supervisory mode for a period of twenty-four (24) hours with five (5) minutes of alarm operation at the end of this period. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. Battery chargers shall be capable of recharging all batteries to one percent capacity in forty-eight hours. Battery, battery charger, ammeter and voltmeter shall be panel mounted.
3. All circuits requiring system operating power shall be 24VDC, power limited in compliance with NFPA 70 Article 725, and shall be individually fused at the control panel.
4. Signaling line circuit interface modules (cards).
5. Indicating appliance circuits as required for the quantity of notification appliances to be served from the panel. The circuits shall be the reversing polarity type.
6. Operating interface panel.

#### 2.03 MANUAL STATIONS

- A. The station body shall be so constructed that chips and scratches will not expose metal. All stations shall be mastered keyed with the control equipment. When actuated, the condition shall be visually apparent.

#### 2.04 DETECTORS

- A. Sensor Bases: Sensor bases shall allow interchangeability of sensor heads: photoelectric, ionization, and heat-type sensors. Sensor bases shall supervise proper head installation. Heads shall be secured with an anti-tamper device. Sensor bases shall provide a remote LED output and have an integral LED for power-on, alarm, and trouble indication. Sensor bases shall have a magnetically-operated functional test feature.
- B. Sensor Heads: The sensors shall be sealed against rear air-flow entry.

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1. Area smoke sensors shall be photoelectric-type. Have insect screens. The photo chamber shall be field cleanable. Nominal detector sensitivity shall be 1.4% per foot obscuration with a range of 1% to 1.84%. Regardless of sensitivity settings, the detector=s stability shall be unaffected by high velocity. No radioactive materials shall be used.
  2. Duct-mounted smoke sensors shall have photoelectric-type smoke sensors, sampling tubes as required, and auxiliary alarm relay with two Aform C@ contacts. The duct-mounted smoke detectors shall be furnished under this section, installed under Division 15, and connected to the fire alarm circuit under this section. The photo chamber shall be field cleanable. Each duct-mounted smoke detector shall be perform properly with the air velocity present at its location.
  3. Heat sensors shall be self restoring.
- C. The heat detector in the elevator machine rooms and elevator shafts shall be non-restorable type and shall be the fixed temperature type set to activate at 135-degrees F. The detectors shall include two N.O. 120V contacts. Provide two (2) spare heat detector heads.
- D. Remote Device Alarm Indicator:
1. For each duct-type smoke detector located in concealed spaces, provide and install a remote light emitting diode (LED) indicator, complete with stainless steel faceplate and label, 24V DC operation.
  2. For above ceiling devices, remote LED=s shall be recessed in wall 12" below ceiling.
  3. Labels shall be engraved micarta with white 1" letters on red background, and shall identify the HVAC system associated with the detector, as well as the location.
  4. Where a concealed detector is located annunciated by a graphic annunciator, the remote device alarm indicator is not required.

**2.05 EVACUATION SIGNALS**

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- A. Evacuation signals shall mount to a standard four inch square outlet box and shall be mounted in a semi-flush manner on the wall.
- B. Horns shall be nominally provide a minimum 87dB at 10 feet as measured per U.L standard 464.
- C. ADA visual evacuation units shall be Xenon strobe type, minimum 75 candela intensity, with 1-3Hz flash rate and 0.2 sec. flash duration.

**2.06 EXTINGUISHING SYSTEM SWITCHES**

- A. Sprinkler Flow, Pressure, and Tamper Switches: Flow, pressure and tamper switches are provided under another division. Provide monitor module for each switch and connect thereto.
- B. Tamper switches ( N/C contacts ) shall not be connected to initiating device circuits with N.O. initiating devices.

**2.07 FIRE SHUTTER CONTROLS**

- A. Where shutters in rated in walls are normally held open, provide ceiling mounted smoke detector(s) and control module for shutter controls. Provide 120 volt power supply to each shutter, and connect to shutter release device through the Form-C contacts, per shutter manufacturer=s instructions.

**2.08 REMOTE ANNUNCIATION**

- A. Provide and install a flush or semi-flush wall-mounted remote annunciator to identify device and floor of alarm incident.

**2.09 WIRING**

- A. All wiring shall be marked in accordance with NEC 760-23, approved by local authorities having jurisdiction for the purpose, and shall be as recommended by the fire alarm system manufacturer.

**2.10 CIRCUIT TRANSIENT PROTECTION**

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- A. Provide circuit transient protection on all wiring including shields which enters or leaves a building. The protector shall use MOV technology and comply with U.L. # 497B requirements. The protector shall fit on a standard 4" square, 2-1/8" deep electrical box.

2.11 MISCELLANEOUS

- A. All other equipment as necessary.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The system shall be installed by a licensed Electrical Contractor.
- B. Deliver each piece of equipment in durable shipping cartons. Maintain cartons through shipping, storage and handling as required to prevent damage and eliminate dirt and moisture. Store cartons inside and protected from weather. Where necessary to store outside, elevate well above grade and enclose with durable waterproof wrapping.
- C. The entire system shall be installed in a workmanlike manner in accordance with the fire alarm system manufacturer's manuals and wiring diagrams. The contractor shall provide all conduit, wiring, outlet boxes, junction boxes, cabinets and similar equipment necessary for the complete installation. Wiring shall be installed in dedicated conduit throughout.
- D. Connections to water flow, pressure and tamper switches shall be through liquid-tight conduit.
- E. All fire alarm system junction boxes above ceilings shall be painted red.
- F. All penetrations of floor slabs and fire walls, shall be fire stopped in accordance with all local fire codes.
- G. End of Line Resistors shall be provided as directed by the manufacturer.
- H. Conceal wiring except in mechanical rooms and areas where other conduit and piping are



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exposed. Fasten flexible conductors bridging cabinet doors and protect against abrasion. Tie and support conductors neatly.

- I. Number code or color code conductors, appropriately and permanently, for identification and servicing of the system.
  
- J. A circuit transient protector shall be installed as close as practical to the point at which wiring enters or leaves a building. Install a maximum 28', No. 12 AWG grounding conductor in 1/2" conduit in as straight a line as possible to an effectively grounded cold water pipe or effectively grounded building steel.
  
- K. The contractor shall comply with all requirements for permits and tests, shall provide all certificates and shall pay all costs for the same.
  
- L. The manufacturer=s local authorized representative shall provide supervision of system installation and provide final system panel connections.
  
- M. Programming and final adjustment shall be performed by the manufacturer=s authorized representative, who shall have full responsibility for debugging and proper calibration of each component in the entire system.
  
- N. Upon completion of the installation of the fire alarm system equipment, the electrical contractor shall provide to the owner, with a copy to the manufacturer=s representative, a signed written statement,  
substantially as follows:

AThe undersigned, having engaged as the contractor on the (NAME OF PROJECT) confirms the fire alarm system equipment installed is in agreement with the wiring diagrams and written instructions and directions provided.@

**3.02 ACCEPTANCE TESTING**

- A. After the system installation is complete, notify the authority having jurisdiction of the acceptance testing to be performed as required in the following paragraphs. Coordinate the scheduling of the

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acceptance testing with the authority having jurisdiction and the owner. At their discretion, acceptance testing shall be performed in the presence of an owner=s representative and the authority jurisdiction. During all acceptance testing, make available the as-built drawings and manufacturer=s installation instructions. The manufacturer=s authorized shall perform the acceptance testing. Correct all deficiencies found in testing and re-test the corrected wiring or component.

- B. Wiring Installation Testing: Provide testing of the installation wiring as required by NFPA 72H para. 2-2, Installation Testing.
- C. Wiring Installation Certification: After completion of the wiring installation testing, complete parts 1 and 3 through 9 of a certificate conforming to NFPA 72 figure 2-2.2. Submit a preliminary copy of the completed parts to the owner and the authority having jurisdiction.
- D. System Operation Testing: Provide testing of system operation as required by NFPA 72H para. 2-3, System Testing. Where application of heat would destroy any detector, it may be manually activated.
- E. Certification of System Operation: After completion of the system operation testing, complete part 2 of the certificate conforming to NFPA 72 figure 2-2.3.

**3.03 CLOSEOUT SUBMITTALS**

- A. Deliver the following to the Owner within thirty (30) days after Owner receives installation certificate.
  - 1. Final specification data sheets, calculations, certificates, and installation programming, operation, and maintenance manuals in suitable binders for maintenance use.
  - 2. As-built drawings including final floor plans and point-to-point diagrams showing all device and splice locations.
  - 3. The application program listing for the system as installed at the time of acceptance.
  - 4. Name, address and telephone number of the authorized factory representative.
  - 5. Final copy of system certification conforming to NFPA 72 figure 2-2.2. Mount on the inside of the

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central station panel door.

**3.04 TRAINING**

A. After submitting the installation certificate, the manufacturer=s authorized representative shall provide

the services of the manufacturer=s trained representative for a period of eight (8) hours, during normal business hours, to instruct the owner=s designated personnel on the operation and routine maintenance of the system.

**3.05 TESTING AND MAINTENANCE CONTRACT PROPOSAL**

A. Testing and Maintenance Contract Proposal: The supplier shall propose a contract, including costs, for the testing and maintenance service described below for each of the first two years following the installation (The first year is the warranty year). Acceptance of the testing and maintenance contract is optional to the owner.

1. The testing and maintenance contract shall include the following services for the entire building:

a. Quarterly tests as required by the Joint Commission. (Operational test for one device per initiating circuit per quarter.)

b. Inspection, testing, maintenance, cleaning, and record keeping as required by NFPA Standards 72, 72E, 72G, and 72H as applicable, including annual operating test for each smoke detector per NFPA 72E para. 8-3.41. Provide quarterly operational testing of 25% of all smoke detectors such that by year=s end all detectors have been tested.

c. Other services recommended by the manufacturer.

d. Replacement of all defective parts in the system.

e. Testing and maintenance shall be provided by the manufacturer=s factory-trained representative during normal working hours, Monday through Friday, excluding holidays.

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2. Propose an indexed or fixed percentage increase to renew the testing and maintenance contract each year after the second year up to ten (10) years total. If an indexed percentage increase is chosen, indicate to what index the increase would be tied ( For example: AAtlanta Service@ index).
3. Propose an additional labor cost for emergency service which is provided at times other than stipulated in paragraph 3.05.B.1.f above. Emergency service is required for the loss of coverage.

END OF SECTION

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SECTION 31 31 16 - TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following for termite control:
  - 1. Soil treatment.

1.3 DEFINITIONS

- A. EPA: Environmental Protection Agency.
- B. PCO: Pest control operator.

1.4 SUBMITTALS

- A. Product Data: Treatments and application instructions, including EPA-Registered Label.
- B. Product Certificates: Signed by manufacturers of termite control products certifying that treatments furnished comply with requirements.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's record information, including the following as applicable:
  - 1. Date and time of application.
  - 2. Moisture content of soil before application.
  - 3. Brand name and manufacturer of termiticide.
  - 4. Quantity of undiluted termiticide used.

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5. Dilutions, methods, volumes, and rates of application used.
  6. Areas of application.
  7. Water source for application.
- E. Bait Station System Application Report: Submit report for Owner's records information, including the following as applicable:
1. Location of areas and sites conducive to termite feeding and activity.
  2. Plan drawing showing number and locations of bait stations.
  3. Plan drawing showing number and locations of monitoring stations and bait stations.
  4. Dated report for each monitoring and inspection occurrence indicating level of termite activity, procedure, and treatment applied before time of Substantial Completion.
  5. Brand name and manufacturer of termiticide.
  6. Quantities of termite bait used.
- F. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A PCO who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment in jurisdiction where Project is located and who is experienced and has completed termite control treatment similar to that indicated for this Project and whose work has a record of successful in-service performance.
- B. Applicator Qualifications: A PCO who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment in jurisdiction where Project is located and who is an experienced installer who employs workers trained and approved by bait station system manufacturer to install manufacturer's products.
- C. Regulatory Requirements: Formulate and apply termiticides, and label with a Federal registration number, to comply with EPA regulations and authorities having jurisdiction.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with EPA-Registered Label requirements and requirements of authorities having jurisdiction.

1.7 COORDINATION

- A. Coordinate soil treatment application with excavating, filling, and grading and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs, before construction.

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- B. Install bait station system after construction, including landscaping, is completed.

1.8 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, signed by applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.
- C. Warranty Period: Three years from date of Substantial Completion.
- D. Warranty Period: Five years from date of Substantial Completion.

1.9 MAINTENANCE SERVICE

- A. Continuing Service: Provide a proposal for continuing service, including monitoring, inspection, and retreatment for occurrences of termite activity, from applicator to Owner, in the form of a standard yearly (or other period) continuing service agreement, starting on the date of Substantial Completion. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT

- A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in a soluble or emulsible, concentrated formulation that dilutes with water or foaming agent, and formulated to prevent termite infestation. Use only soil treatment solutions that are not harmful to plants. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to the product's EPA-Registered Label.
- B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- C. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

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1. AgrEvo Environmental Health, Inc.; a Company of Hoechst and Schering, Berlin.
2. American Cyanamid Co.; Agricultural Products Group; Specialty Products Department.
3. Bayer Corp.; Garden & Professional Care.
4. DowElanco.
5. FMC Corp.; Pest Control Specialties.
6. Zeneca Professional Products.

## 2.2 BAIT STATION SYSTEM

- A. General: Provide bait stations and, if applicable, monitoring stations, according to manufacturer's EPA-Registered Label for product, manufacturer's written instructions, and the following:
  1. Provide number of stations, based on the dimensions of building perimeter indicated on Drawings, according to manufacturer's written instructions.
  2. Comply with manufacturer's written instructions for termite management system. Provide not less than one cluster of stations per 20 linear feet (6 linear meters), based on the linear dimensions of building perimeter indicated on Drawings, consisting of not less than three stations per cluster.
- B. Available Product: Subject to compliance with requirements, a product that may be incorporated into the Work includes, but is not limited to, the following:
- C. Product: Subject to compliance with requirements, provide the following product:
  1. Hexaflumuron: Sentricon System, Recruit II; DowElanco.
  2. Hydramethylnon: Subterfuge; American Cyanamid Co., Agricultural Products Group, Specialty Products Department.
  3. Sulfluramid: Systematic Termite Control, FirstLine GT; FMC Corp., Pest Control Specialties.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of the soil, interfaces with earthwork, slab and foundation work, landscaping, and other conditions affecting performance of termite control. Proceed with application only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION



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- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparing substrate. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended by termiticide manufacturer.
- C. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

3.3 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

3.4 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute the treatment evenly.
  - 1. Slabs-on-Grade and Basement Slabs: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
  - 2. Foundations: Adjacent soil including soil along entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating slab, and around interior column footers, piers, and chimney bases; and along entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
  - 3. Crawlspace: Soil under and adjacent to foundations as previously indicated. Treat adjacent areas including around entrance platform, porches, and equipment bases. Apply overall treatment only where attached concrete platform and porches are on fill or ground.
  - 4. Masonry: Treat voids.
  - 5. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

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- B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- D. Post warning signs in areas of application.
- E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

### 3.5 INSTALLING BAIT STATION SYSTEMS

- A. Place bait stations and, if applicable, monitoring stations, according to the EPA-Registered Label for the product and manufacturer's written instructions, in areas that are conducive to termite feeding and activity, as follows:
  - 1. Conducive sites and locations indicated on Drawings.
  - 2. In and around infested trees and stumps.
  - 3. In mulch beds.
  - 4. Where wood directly contacts soil.
  - 5. Areas of high soil moisture.
  - 6. Near irrigation sprinkler heads.
  - 7. Each area where roof drainage system, including downspouts and scuppers, drains to soil.
  - 8. Along driplines of roof overhangs without gutters.
  - 9. Where condensate lines from mechanical equipment drip or drain to soil.
  - 10. At plumbing penetrations through ground-supported slabs.
  - 11. Other sites and locations as determined by the PCO.
- B. Inspect and service stations from time of their application until completion of the time period established by continuing service agreement, according to the EPA-Registered Label for the product and manufacturer's written instructions for termite management system and bait products.
  - 1. Service Frequency: Inspect monitoring stations not less than once every three months.
- C. Inspect and service stations from time of their application until completion of the time period established by continuing service agreement, according to the EPA-Registered Label for the product and manufacturer's written instructions for termite bait products.
  - 1. Service Frequency: For supplementary and preventive treatment, inspect not less than once every three months.

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