PROJECT SPECIFICATIONS

FOR:

GLOUCESTER COUNTY
HARRISON TOWNSHIP EMS BUILDING
Project No.: PD26-041

169-171 BRIDGETON PIKE
MULLICA HILL, NEW JERSEY 08062

PREPARED FOR

GLOUCESTER COUNTY
254 COUNTY HOUSE ROAD
CLARKSBORO, NEW JERSEY 08020

PREPARED BY

BACH Associates, PC
ENGINEERS • ARCHITECTS • PLANNERS

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ISSUE DATE
October 26, 2026

VOLUME 1 OF 2

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TABLE OF CONTENTS

VOLUME 1 OF 2

		# PAGES
PROJECT DIRECTORY		1
000110	TABLE OF CONTENTS	5
000115	LIST OF DRAWING SHEETS	2
001113	NOTICE TO BIDDERS	2
002113	INSTRUCTION TO BIDDERS	54
004100	BID FORM	5
004321	ALLOWANCE FORM	1
005000	AGREEMENT FORM	1
005001	DEFINITIONS	1
DIVISION 1 - GENERAL REQUIREMENTS		
010000	GENERAL CONDITIONS	1
010160	SAFETY REQUIRMENTS AND PROTECTION OF PROPERTY	4
011000	SUMMARY OF WORK	4
012000	MEASUREMENT AND PAYMENT	2
013000	SUBMITTAL PROCEDURES	4
013010	PROJECT MANAGEMENT AND COORDINATION	4
013113	JOB COORDINATION	2
014000	QUALITY CONTROL	3
016000	MATERIAL / MANUFACTURER SUBSTITUTION POLICY	1
017000	EXECUTION REQUIREMENTS	4
017001	CLOSE-OUT SUBMITTALS	5
017419	CONSTRUCTION WASTE MANAGEMENT	4
DIVISION 2 – EXISTING CONDITIONS		
024100	DEMOLITION	4
DIVISION 3 – CONCRETE		
033000	CAST IN PLACE CONCRETE	18
DIVISION 4 – MASONRY		
042000	UNIT MASONRY	10
DIVISION 6 – WOOD AND PLASTICS		
061000	ROUGH CARPENTRY	11
061001	SHEATHING	6
061010	ROUGH CARPENTRY – BLOCKING	8
061053	MISCELLANEOUS CARPENTRY	5
061752	SHOP-FABRICATED WOOD TRUSSES	4

062023 INTERIOR FINISH CARPENTRY 11

TABLE OF CONTENTS (CONTINUED)

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

072001	BUILDING INSULATION	2
072119	FOAMED IN PLACE MASONRY WALL INSULATION	3
072500	VAPOR BARRIERS	1
074616	FIBER CEMENT SIDING AND TRIM	7
076000	SHEET METAL AND FLASHINGS	3
076100	STANDING DEAM METAL ROOFING	3
077100	MANUFACTURED ROOF SPECIALTIES	2
079200	JOINT SEALANTS	6

DIVISION 8 – OPENINGS

080671	DOOR HARDWARE	15
081113	STEEL DOORS AND FRAMES	6
081413	COMMERCIAL WOOD DOORS	5
083614	OVERHEAD SECTIONAL STEEL DOORS	4
084113	ALUMINUM FRAMED ENTRANCES	7
087116	COMMERCIAL DOOR OPERATORS	6
088100	ARCHITECTURAL GLASS	7
088101	GLASS INSTALLATION	8

DIVISION 9 – FINISHES

092116	GYPSUM BOARD	5
093013	CERAMIC TILE	7
095123	ACOUSTICAL TILE CEILINGS	10
096519	RESILIENT TILE FLOORING	5
099123	PAINTING	6
099726	EPOXY FLOOR COATING SYSTEM	2

DIVISION 10 – SPECIALTIES

101101	VISUAL DISPLAY BOARDS	3
101400	INTERIOR SIGNAGE	3
102000	MISCELLANEOUS SPECIALTIES	2
102813	TOILET AND BATH ACCESSORIES	3
105113	METAL LOCKERS	6
107516	FLAG POLE – 20 FOOT	3

DIVISION 12 – FURNISHINGS

122113	WINDOW BLINDS	2
123530	KITCHEN CABINETRY AND COUNTERTOPS	4

TABLE OF CONTENTS (CONTINUED)

VOLUME 2 OF 2

DIVISION 22 – PLUMBING

220500	GENERAL PLUMBING PROVISIONS	15
220517	PLUMBING SLEEVES, SEALS, & ESCUTCHEONS	6
220523	PLUMBING VALVES	3
220529	HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT	5
220553	IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT	3
220719	PLUMBING PIPING AND EQUIPMENT INSULATION	3
221116	DOMESTIC WATER PIPING	8
221123	NATURAL GAS PIPING	5
221316	SANITARY WASTE AND VENT PIPING	7
223300	DOMESTIC WATER HEATERS	2
224000	PLUMBING FIXTURES AND TRIM	3

DIVISION 23 – HVAC

230500	GENERAL HVAC PROVISIONS	15
230517	HVAC PIPING SLEEVES, SEALS, AND ESCUTCHEONS	3
230529	HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT	6
230553	IDENTIFICATION FOR HVAC DUCT AND EQUIPMENT	2
230593	TESTING, ADJUSTING, AND BALANCING	3
230713	DUCT INSULATION	2
230719	HVAC PIPING INSULATION	3
231123	NATURAL GAS PIPING	5
232113	HVAC PIPING	3
233113	DUCTWORK	5
233300	AIR DUCT ACCESSORIES	3
233423	EXHAUST FANS	3
233713	DIFFUSERS, REGISTERS, AND GRILLES	2
233725	LOUVERS	4
235400	GAS FURNACES	2
235523	GAS-FIRED RADIANT HEATERS	1
236200	AIR COOLED CONDENSING UNITS	2
238324	ELECTRIC HEATERS	2

TABLE OF CONTENTS (CONTINUED)

DIVISION 26 – ELECTRICAL

260500	GENERAL ELECTRICAL PROVISOINS	18
260519	WIRES AND CABLES	4
260526	GROUNDING	3
260529	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS	2
262416	PANEL BOARDS	5
262726	WIRING DEVICES	6
262813	FUSES	1
262816	MOTOR AND CIRCUIT DISCONNECTS	2
265100	LIGHTING	3

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

283111	FIRE ALARM SYSTEM	10

DIVISION 31 – EARTH WORK

310000	EARTHWORK	6
310001	TRENCHING, BACKFILL AND COMPACTING	5
311000	SITE CLEARING	7
311200	SELECTIVE CLEARING	2
312000	EARTH MOVING	10
312200	GRADING	5
312319	DEWATERING	2
312500	EROSION AND SEDIMENTATION CONTROLS	7
313116	TERMITE CONTROL	5
315000	EXCAVATION SUPPORT AND PROTECTION	1

DIVISION 32 – EXTERIOR IMPROVEMENTS

321123	AGGREGATE BASE COURSES	2
321216	ASPHALT PAVING	2
321613	CONCRETE CURB	3
321623	CONCRETE SIDEWALK AND DRIVEWAYS	3
321633	ACCESS DRIVEWAY	2
321723	PAVEMENT MARKING AND SIGNAGE	3
323000	SITE IMPROVEMENTS	2
323129	WOOD FENCES AND GATES	1
323913	MANUFACTURED METAL BOLLARDS	2
329223	SODDING	2
329300	PLANTS AND TREES	2

TABLE OF CONTENTS (CONTINUED)

DIVISION 33 – UTILITIES

330000	UTILITIES	1
331000	WATER UTILITIES	3
333000	SANITARY SEWERAGE UTILITIES	2
334000	STORM DRAINAGE UTILITIES	2
334100	STORM UTILITY DRAINAGE PIPING	2
334726	BASINS	1
334900	STORM DRAINAGE STRUCTURES	2
335113	PIPED ENERGY DISTRIBUTION	2
337116	ELECTRICAL UTILITY POLES	2

APPENDIX

A101 OWNER /CONTRACTOR AGREEMENT FORM (Draft)	7
A201 GENERAL CONDITIONS	54
STATE AND COUNTY PREVAILING WAGE RATES	1
GEOTECHNICAL ENGINEERING REPORT	26
SOILS ENGINEERING REPORT	16
PROJECT LABOR AGREEMENT	43
STEELWORKERS ADDENDUM	1

END OF SECTION

LIST OF DRAWING SHEETS

The following contract drawings are herein made part of the project specifications:

SITE PLANS

C-1 COVER SHEET AND INDEX OF DRAWINGS
SP-1 EXISTING CONDITIONS AND DEMOLITION PLAN
SP-2 SITE PLAN
SP-3 GRADING, DRAINAGE AND UTILITY PLAN
SP-4 LANDSCAPING AND LIGHTING PLAN
SP-5 SOIL EROSION AND SEDIMENT CONTROL PLAN
SP-6 SESC NOTES
SP-7 SESC NOTES AND DETAILS
SP-8 STORMWATER BASIN DETAILS
SP-9 CONSTRUCTION DETAILS
SP-10 CONSTRUCTION DETAILS
SP-11 VEHICLE ACCESS PLAN

BUILDING PLANS

C-1 COVER SHEET AND INDEX OF DRAWINGS
C-2 ADA GUIDELINES

A-1 FOUNDATION PLAN AND DETAIL
A-2 FLOOR PLAN, PARTITION TYPES AND DETAILS
A-3 CEILING PLAN, BUILDING SECTION AND DETAILS
A-4 ROOF PLAN AND DETAIL
A-5 FRONT AND RIGHT SIDE ELEVATIONS AND WINDOW DETAILS
A-6 REAR AND LEFT SIDE ELEVATIONS
A-7 BUILDING SECTION AND DETAIL
A-8 BUILDING SECTION
A-9 INTERIOR ELEVATION
A-10 SCHEDULES AND DETAILS
A-11 ROOF DETAILS
A-12 PARTITAL LOBBY PLAN, ELEVATIONS AND DETAILS

S-1.1 STRUCTURAL NOTES AND SPECIAL INSPECTIONS REQUIREMENTS
S-2.1 FOUNDATION AND GROUND FLOOR PLAN
S-2.3 ROOF FRAMING PLAN
S-3.1 FOUNDATION DETAILS
S-3.2 ROOF FRAMING DETAILS

ECS ELECTRICAL COVER SHEET
E-1.0 ELECTRICAL FLOOR PLAN
E-1.1 ELECTRICAL FLOOR PLAN
E-2.0 ELECTRICAL SINGLE LINE DIAGRAM AND SCHEDULES
E-3.0 FIRE ALARM SYSTEM
E-3.1 FIRE ALARM DEVICE INFO
E-3.2 FIRE ALARM DEVICE INFO

LIST OF DRAWING SHEETS (CONTINUED)

M-1.0 MECHANICAL COVER SHEET
M-2.0 MECHANICAL FLOOR PLAN
M-3.0 MECHANICAL SCHEDULES AND NOTES
M-4.0 MECHANICAL DETAILS

P-1.0 PLUMBING COVER SHEET
P-1.1 PLUMBING SCHEDULES
P-2.0 PLUMBING FLOOR PLAN (WATER)
P-2.1 PLUMBING FLOOR PLAN (WASTE AND VENT)
P-3.0 PLUMBING DETAILS

END OF SECTION

NOTICE TO BIDDERS

PUBLIC NOTICE IS HEREBY GIVEN that sealed bids will be received by **Gloucester County** for **PD-26-041 - Harrison Township EMS Building** project in Mullica Hill, New Jersey.

Bid forms, contracts and specifications are on file at the office of **Gloucester County Purchasing Department**, 1st floor, 2 S. Broad, Woodbury, New Jersey 08096.

Said Bids will be received at the office of **Gloucester County Purchasing Department, 1st floor, 2 South Broad, Woodbury, New Jersey 08096.** Bids may be mailed to the attention of Ms. Kimberly Larter, QPA or dropped off at Gloucester County Purchasing Department, Monday through Friday, 8:30 AM to 4:30 PM. Bids are due on **December 18, 2026 @ 10:00 AM** prevailing time, and opened and read aloud in the Office of Purchasing Department.

A site visit is scheduled for **November 10, 2026 @ 10:00 AM** prevailing time at the project location, 169-171 Bridgeton Pike, Mullica Hill, New Jersey 08062. This site visit is not mandatory.

Deadline for submission of bidder questions to Bach Associates is **November 24, 2026 @ 4:00 PM**, fax or email: dmuits@bachdesigngroup.com

Bid forms, contracts and specifications can be reviewed at no charge at the office of Bach Associates PC, 304 White Horse Pike, Haddon Heights, NJ 08035.

NO BIDS ARE TO BE DROPPED OFF AT BACH ASSOCIATES.

Gloucester County reserves the right to consider the bids for sixty (60) days after the receipt thereof, during which time no bids may be withdrawn, and further reserves the right to reject any or all bids, either in whole or in part and also to waive any informality and make such awards or take action as may be in the best interest of **Gloucester County.**

Bids must be on the bid form prepared by Bach Associates, PC, in the manner designated therein and required by the specifications, must be enclosed in sealed envelopes bearing the name and address of the bidder on the outside and also bearing on the outside reference to the particular work bid upon. Said bids shall be addressed to **Ms. Kimberly Larter, QPA, Gloucester County Purchasing Department, 1st floor, 2 S. Broad, Woodbury, New Jersey 08096.**

Each bid shall be accompanied by a certified check, cashier's check or bid bond duly executed by the bidder as principal and having as surety thereon a surety company approved by **Gloucester County** in an amount not less than ten percent (10%) but in no case in excess of $20,000.00 of the amount bid, in accordance with N.J.S.A. 18A:18A-24, naming as payee or obligee, as applicable, **Gloucester County** to be applied in the event that the bidder would default on the bid or in providing the required bonds and insurance certificates. Any such bid bond shall be without endorsement or conditions. Bid shall also be accompanied by a certificate letter from a surety company stating that it will provide the bidder with the completion bond.

The award of the contract shall be made subject to the necessary moneys to do the work being provided by **Gloucester County** in a lawful manner. The contract to be executed by the successful bidder will provide that it shall not become effective until the necessary moneys to do the work have been provided by **Gloucester County** in a lawful manner. The award shall further be subjected to the securing of necessary State, Federal or Local permits governing the work.

The contractor is also further notified that he must comply with P.L. 2004, C. 57 and submit proof of business registration and submit proof of business registration for any named subcontractor's in accordance with the act.

Prevailing wages established under the Davis-Bacon Act will apply to this contract. The contract documents contain requirements addressing prevailing labor wage rates, labor standards, nondiscrimination in hiring practices, goals for minority and female participation, MBE and WBE participation, participation by Section 3 residents and businesses, and related matters.

The bidders/offerors must submit documentary evidence of minority and women business enterprises and of Section 3 businesses (low and moderate income businesses) who have been contacted and to whom commitments have been made. Documentation of such solicitations and commitments shall be submitted concurrently with the bid.

The right is reserved to reject any or all proposals, in whole or in part, or to make awards to such bidder or bidders who, in the judgment of **Gloucester County**, is the lowest responsible bidder and to waive such informalities as may be permitted by law.

Business entities are advised of their responsibility to file an annual disclosure statement of political contributions with the New Jersey Law Enforcement Commission (ELEC) pursuant to the requirements of N.J.S.A. 19:44A-20.27 (New Jersey "Pay-To-Play" Law) if they receive contracts in excess of $50,000 from public entities in a calendar year. Business entities are responsible for determining if filing is necessary. Additional information on this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us.

By Gloucester County
Ms. Kimberly Larter, QPA

Dated: October 28, 2026

TABLE OF CONTENTS

Construction Bidders Checklist……..

Scope of Work – Attachment A

Instructions to Bidders……..

Notice to Bidders (Business Registration Certificate)……..

Notice to Bidders – (Affirmative Action Requirements)…….

Mandatory Equal Employment Opportunity Language – Exhibit B……

Affirmative Action Plan MBE/WBE Tracking Form……..

Wage & Hour Compliance……..

Approved Apprenticeship Form……..
Must be attached with your bid submission

Subcontractor List – Electrical – Pursuant to N.J.S.A.40A:11-16

Subcontractor List – Plumbing & Gas Fitting - Pursuant to section N.J.S.A 40A:11-16

Subcontractor List – Steam & Hot Water Heating - Pursuant to section N.J.S.A. 40A:11-16

Subcontractor List – Structural Steel & Iron Work - Pursuant to N.J.S.A. 40A:11-16

Subcontractor Listing……..

The Public Works Contractor Registration Act – Pursuant to N.J.S.A 34:11-56.26

Notice to Bidders (Performance Bond)…….

Certification Regarding Debarment……...

Federal Debarment Certification Regarding ……...

Instructions for Certification……..

Disclosure of Investment Activities in Iran Certification …….……
And Prohibited Activities in Russia-Belarus

Notice: Construction/Excavation Contract Only……
Underground Facility Protection Act

Alternate Dispute Resolution…….

Non-Collusion Affidavit……

Stockholder Disclosure Certification – Pursuant to (C.52:25-24-2)

Acknowledgement of Receipt of Addenda……

County Cooperative Contract Pricing……

Withdrawal of Bid Notice
(N.J.S.A. 40A:11-23.3)……..

Contractor's Insurance Limits……

CONSTRUCTION BIDDERS CHECKLIST

THIS BIDDER'S CHECKLIST MUST BE COMPLETED, SIGNED AND SUBMITTED WITH YOUR BID PACKAGE:

I. Failure to submit the following documents with this bid is mandatory cause for the bid to be rejected.

INITIAL BELOW*

A. Bid deposit, if required for this bid, in the form of a Certified check, cashier's check or bid bond. 40A:11-21 _____

B. Certificate from a surety company, if required for this bid, Stating that if bid is accepted they will provide the required Performance bond, NJSA 17:17-10 requires proof that Surety is authorized to do work in the State of New Jersey. 40A:11-22 _____

C. Public disclosure statement listing stockholders or Partners owning **10** % percent or more of corporation or partnership Stock _____

D. List of all subcontractors (if applicable) _____

E. Non-collusion affidavit properly notarized _____

F. Acknowledgment of receipt of Addenda _____

G. Signature page completed and signed--End of Specifications _____

H. Apprenticeship Program information (Including all subcontractors) _____

I. Business Registration Certificate (Including all subcontractors) Must be submitted prior to award of contract _____

J. Public Works Contractor Registration Act – Must be submitted prior to award of contract _____

K List of trades to be used on this project _____

L Deviations from specifications if applicable Bid page. _____

M Authorized signatures must appear on all forms _____

N Wage and Hour Compliance _____

O. Debarment Certification Form _____
*Each requirement above must be initialed.

P. Federal Debarment Must be submitted prior to award of contract _____

Q. Disclosure of Investment Activities in Iran Certification _____
And Prohibited Activities in Russia-Belarus
Must be submitted prior to award of contract

****THE UNDERSIGNED HEREBY ACKNOWLEDGES THE ABOVE LISTED REQUIREMENTS.**

Name of Bidder: _____
(Person, Firm or Corporation)

By: _____
(Title)

(**Revised April 6, 2026)**

NOTICE TO ALL BIDDERS

New Jersey Statute 40A: 11-13 Specifications:

Any specifications for the provision or performance of goods or services under this act shall be drafted in a manner to encourage free, open and competitive bidding. In particular, no specifications under the act may:

(d) Require, with regard to any purchase, contract or agreement, the furnishing of any "brand name," but may in all cases require "brand name or equivalent," except that if the materials to be supplied or purchased are patented or copyrighted, such materials or supplies may be purchased by specification in any case in which the ordinance or resolution authorizing the purchase, contract, sale or agreement so indicates, and the special need for such patented or copyrighted materials or supplies is directly related to the performance, completion or undertaking of the purpose for which the purchase, contract or agreement is made.

Brand Names and/or Product Description

Brand names and/or descriptions used in this specification for bid proposal are to acquaint prospective bidders with the type of equipment described (or commodity) and will be used as a standard by which alternate or competitive materials offered will be judged. Competitive items must be equal to the standard described and be of the same reputation for quality and workmanship. Variations between the equipment described and material offered are to be fully explained by the bidder in an accompanying letter. In the absence of any changes by the bidder, it will be presumed and required that materials as described in these specifications be delivered.

INSTRUCTIONS TO BIDDERS

1. The County reserves the right to reject all bids pursuant to N.J.S.A. 40A:11-13.2 and any bid that is non-responsive or submitted by a bidder that is not responsible. The County may also waive any minor informalities or non-material exceptions to the bid.

2. Unless otherwise stated in the bid by the bidder, time, in connection with discount offered, will be computed from date of delivery and acceptance at destination, or from date correct claim voucher properly certified by the contractor is received if the latter date is later than the date of delivery and acceptance.

3. In case of default by the bidder or contractor, the County of Gloucester may procure the articles or services from other sources and hold the bidder or contractor responsible for any excess cost occasioned thereby.

4. The bidder, if awarded the contract, agrees to protect, defend and save harmless the County, against damage for payment for the use of any patented material process, article or devise that may enter into the manufacture, construction or form a part of the work covered by either order or contract, and he further agrees to indemnity and save harmless the County from suits or actions of every nature and description brought against it, for, or on account of any injuries or damages received or sustained by any party or parties by, or from any of the acts of the contractor, its servants or agents.

5. The contractor shall maintain sufficient insurance to protect against all claims under Workmen's Compensation, General and Automobile Liability, and shall be subject to approval for adequacy of protection. Certificates of such insurance shall be provided the County when required.

6. It is to be understood by the bidder that this bid is submitted on the basis of specifications prepared by the County and the fact that any bidder is not familiar with these specifications or conditions will not be accepted as an excuse.

7. Each bid must be signed in ink by person authorized to do so.

8. Bidders must use the Proposal Form furnished by the County when submitting their bid.

9. Non-Collusion Affidavit must be completed and included with bid.

10. Surety in the form of a bid bond, certified check or cashier's check in the amount of 10 percent of total bid, but not in excess of $20,000.00, will be required.

11. A performance bond in the amount of 100 percent of total bid will be required of the successful bidder at the time of award of the contract.

12. Return of bid securities. All bid security, except the securities from the three lowest responsible bidders shall be returned within ten (10) days. Within three (3) days after signing of the contract and approval of contractor's performance bond, the bid security of the remaining bidders shall be returned to them.

13. The vendor will secure and attach to bid packet a letter of surety from a licensed bonding company; licensed to do business in the State of New Jersey; assuring us a performance bond in the amount required should vendor be awarded contract.

14. The surety company providing the bid bond, if required with this bid, consents of surety and the performance bond must be authorized pursuant to the New Jersey statutes to carry on business in the State of New Jersey as specified in N.J.S.A. 17:17-1 (G) and must have a Best's Rating of B+ or better and a Best's Financial Size Category of VII or larger, the minimum ratings and the financial size categories are those listed for the surety company in the most current issues of Best's Key Rating Guide, Property-Casualty, published by the A.M. Best Company, Oldwick, New Jersey.

    A. On multi-year contracts, the performance bond may be resubmitted each year on the contract anniversary date for the amount remaining on the contract.

    B. Submission of a performance bond, if required for this bid, is a condition precedent to a contract award. After receipt of such a performance bond and other submissions required by the bid specifications, the bid will be accepted and a signed contract and a purchase order will be forwarded to the successful bidder.

    C. The County of Gloucester shall not be responsible for any expenditure of monies or other expenses incurred by the bidder unless the bidder has received a signed contract and a purchase order.

15. Insert prices for furnishing all of the materials and/or labor described or required. Prices shall be net, including any charges for packing, crating, containers, etc., and all transportation charges fully prepaid by the contractor F.O.B. destination and placement at locations specified by the County. No additional charges will be allowed for any transportation costs resulting from partial shipments made at the vendor's convenience when a single shipment is ordered.

16. Payments will be made upon the approval of vouchers submitted by the successful bidder in accordance with the requirements of the Board of County Commissioners and subject to the Board of County Commissioners' customary procedures.

PROCEDURE FOR PAYMENT OF BILLS

The Contractor shall bill on a monthly basis for work performed pursuant to this contract, including interim bills, final bills and bills for the release of retainage.

The Contractor shall submit its bill only on the County's periodic billing date.

The periodic billing date for such bills shall be that date which is 20 days prior to the second monthly meeting of the Gloucester County Board of County Commissioners, (the "Bill Approval Meeting"). At each such Bill Approval Meeting, the Board of County Commissioners shall approve and certify the submitted bills, and direct that payment be made within 10 days of such meeting date.

The County shall examine the bills submitted on the periodic billing date prior to the Bill Approval Meeting. In the event that the County shall determine that all or some portion of the payment should be withheld, the County shall notify the Contractor in writing of the amount withheld and of their reasons for withholding payment.

The balance of the bill will be presented for payment at the Bill Approval Meeting.

Either party to this Contract may demand that a dispute concerning whether a party has failed to make payments pursuant to the provisions of N.J.S.A. 2A:30A-1 et. seq., be submitted to non-binding mediation.

If mediation is demanded, it shall be demanded consistent with the County's provisions concerning Alternative Dispute Resolution for contracts to which N.J.S.A. 40A:11-50 is applicable. Those provisions are set forth below and in the Contract which shall be entered into by the parties. [Note: Alternative Dispute Resolution shall not be available with regard to disputes concerning the bid solicitation or award process or the formation of contracts or subcontracts entered into pursuant to the New Jersey Local Public Contracts Law.]

The County's Alternative Dispute Resolution procedure is as follows:

A. **Controversies and Claims Subject to Mediation.** Any controversy or claim arising out of or related to the contract, or the breach thereof, shall be settled by mediation.

If a dispute between County and Contractor arises during the course of the contract, the parties will make a good faith effort to resolve the dispute through non-binding mediation.

B. **Contract Performance Pending Mediation**. During mediation proceedings, Contractor shall continue to perform, and County shall continue to make payments pursuant to the terms of the Contract.

C. **When Mediation May be Demanded**. Prior to either party demanding mediation, the aggrieved party shall attempt to resolve the problem directly with the other party. The aggrieved party shall submit a written notice of dispute to the other party. The other party shall respond in writing.

Demand for mediation of any claim shall not be made until the earlier of the following:

(a) five (5) business days after the other party has provided its written response to the aggrieved party's notice of dispute;
(b) 30 days have passed after submission of the original, written claim by the aggrieved party and the other party has not responded.

If the written response from the other party does not resolve the dispute, the aggrieved party shall have 30 days from the delivery of the other party's response to file a demand for mediation. If the aggrieved party fails to do so, it shall be deemed to have waived its right pursuant to this contract to demand Alternative Dispute Resolution.

A party who files a "Notice of Demand for Mediation" must assert in the demand all claims then known to that party for which mediation may be demanded. If a party fails to include a claim because of excusable neglect, or when a claim has matured or been acquired subsequently, the mediator or mediators may permit amendments.

D. Procedure to Request Mediation. Either party may demand mediation by written notice to the other party. The written notice shall contain at minimum (1) a brief statement of the nature of the dispute, and (b) the name, address and the phone number of that party's designated representative for purposes of mediation.

The other party shall designate its representative for mediation in writing no later than five (5) business days after receipt of the demand for mediation.

The respective designees shall thereupon promptly, and with due regard for the need for timely action, choose a mediator. If the parties cannot agree on a mediator, they shall choose a reputable mediation firm.

Any mediation firm so chosen shall present a list of at least five (5) proposed mediators to the parties and shall provide the parties with a summary of each person's qualifications to serve as mediator. Each party shall rank the proposed mediators in order of preference.

The fifth and any lower ranked persons on each list will be excluded from further consideration.

The chosen mediator shall be the remaining person who is the combined highest ranking mediator on both preference lists, after deleting all excluded persons.

In the event of a tie, the mediator shall be chosen by lot.

E. **Procedures at Mediation.** The mediation shall be conducted in such reasonable and efficient manner as may be agreed between the parties and the mediator or, if the parties cannot agree, as may be determined by the mediator.

The parties will not be bound by the Rules of Evidence in presenting their positions before the mediator.

F. **Cost of Mediation.** Each party will bear its own cost of participation in the mediation. The mediator's fee will be divided equally between the parties.

G. **Failure of Mediation.** If a good faith effort to resolve the dispute through mediation is unsuccessful, either party may terminate the mediation by written notice to the mediator and to the other party. Thereafter, either party may submit the dispute to the Superior Court of New Jersey, Gloucester County, for adjudication, which court shall have exclusive original jurisdiction over the dispute.

17. The county reserves the right to obtain estimates from vendors on state contract as well as bidders responding to this solicitation and award the contract for the work to the vendor offering the lowest, responsive and responsible price.

18 Unless lump sum price is specifically requested, unit and extended prices should also be given.

19. Award will be made by the Gloucester County Board of County Commissioners within sixty (60) days after receipt of bids.

20. Prevailing Wage & Labor Laws. The New Jersey prevailing Wage Act (P.D. 1963, Chapter 150) and provisions of the State Labor Laws must be complied with by the successful bidder.

Verification of an approved apprenticeship-training program must be included with your bid.

21. Since the County will from time to time procure items of apparel and textile; and whereas there exists in some industries sweatshop conditions such as paying of poverty wages, violating workplace regulations and suppressing worker rights; the County will not purchase, lease, rent or take on consignment goods and/or services produced under the above conditions.

22 Each bidder by submitting a bid certifies that they will comply with all Federal, State and County laws and regulations concerning the above (20). Each bidder also certifies that they will comply with the County of Gloucester resolution regarding sweatshop conditions as passed on April 1, 1998. A copy of this resolution is on file in the office of the purchasing agent.

23 Equal or Tie Bids. The County of Gloucester reserves the right to award at their discretion to any one of the tie bidders.

24 The County of Gloucester is exempt from any State sales tax or Federal excise tax. In submitting its bid, the contractor certifies that its total base bid does not include any New Jersey State Sales Tax.

25 For purpose of evaluation where an equivalent product is being furnished, bidder must indicate any variation to our specifications no matter how slight. If no variations are indicated, it will be construed that the bid fully complies with our specifications.

26 Quantities as shown are approximate and the County reserves the right to increase or decrease quantities by 20 percent at the unit price bid.

27 The contract shall be in effect for one (1) year from date of award unless otherwise stated.

28 Bids may be hand delivered or mailed per legal notice to bidders. In the case of mailed bids, the County assumes no responsibility for bids received after the designated date and time and will return late bids to the bidder unopened.

29 In accordance with Affirmative Action Law, (N.J.A.C. 17:27) with implementation of July 10, 1978, successful bidder must agree to obtain individual employer certification and number and complete Affirmative Action Employee Information Report (Form AA-302). Also, during the performance of this contract, the contractor agrees as follows: (a) The contractor or subcontractor where applicable, will not discriminate against any employee because of age, race, creed, color, religion, Vietnam-era veteran status, national origin, ancestry, marital status disability, or affectional or sexual orientation, genetic information, sex or atypical hereditary, cellular or blood trait. The contractor will take affirmative action to ensure that such applicants are recruited and employed and that employees are treated during employment, without regard to their age, race, creed, color, religion, Vietnam-era veteran status, national origin, ancestry, marital status, sex, affectional or sexual orientation, genetic information, sex or atypical hereditary, cellular or blood trait. 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, notice provided by the Public Agency Compliance Officer setting forth provisions of this non-discrimination clause: (b) the contractor or subcontractor, where applicable, 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 age, race, creed, color, national origin, ancestry, marital status, sex or handicap; (c) the contractor or subcontractor, where applicable, will send to each labor union or representative or workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or worker's representative of the contractor's commitments under this act and shall post copies of the notice; (d) the contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to the, N.J.A.C. 17:27 as amended and supplemented from time to time.

30 Buy American Clause
Only manufactured products of the United States, wherever available, shall be used in the execution of the work specified herein.

31 Any changes, whiteouts, strikeouts, etc., on the proposal page must be initialed by the person responsible for signing the bid.

32 Bids shall be prepared on forms furnished by the County. All blank spaces shall be filled in, by typewrite or ink, and amounts clearly shown.

33 Bids may not be modified after submittal. Bidders may withdraw bids at any time before opening.

34 All bids submitted shall include in price any applicable permits, or fees required by any other government entity that has jurisdiction to require the same.

35 By submission of bid, the bidder certifies that the merchandise to be furnished will not infringe upon any valid patent or trademark and the successful bidder shall, at this own expense, defend any and all actions or suits charging such infringement, and will save the County harmless in any case of any such infringement.

36 No vendor shall influence, or attempt to influence or cause to be influenced, any county officer or employee to use his/her official capacity in any manner which might tend to impair the objectivity or independence of judgement of said officer or employee.

37 No vendor shall cause or influence, or attempt to cause or influence, any county officer or employee to use his/her official capacity to secure unwarranted privileges or advantages for the vendor or any other person.

38 The provisions above shall not be construed to prohibit a county officer or employee from contracting with vendors under the same terms and conditions as are offered or made available to members of the general public.

39 Whenever a bid calls for an on-site inspection or a pre-bid meeting, by no means is anyone to assume that answers given at the site inspection or pre-bid meeting to be binding unless confirmed in writing via an addendum prior to the bid opening by the Purchasing Department.

40 It will be assumed that all bids are based upon the specifications unless the bidder stipulated to the contrary in letter form to be attached to bid submission. Bidder shall not type changes on Bid Specification Forms. The letter shall point out in detail any and all deviations from the specification.

41 Should any difference arise between the contracting parties as to the meaning or intent of these instructions or specifications, the county purchasing agent's decision shall be final and conclusive.

42 As of November 1986, all New Jersey Governmental Agencies are mandated to comply with Public Employment -- Occupational Safety and Health Act legislation that closely adheres to the Federal Occupational Safety and Health Act of 1970, requiring compliance with safety standards thereof. As of this date, all equipment owned and operated by the County of Gloucester shall meet the established standards. It is therefore imperative that all concerned be made aware of and comply with the following:

The vendor or contractor hereby guarantees that all materials, supplies, and equipment furnished or delivered to the County of Gloucester as listed on any bid, request for proposal, quotation, contract or purchase order meet the requirements, specifications and standards as provided for under the Federal Occupational Safety and Health Act of 1970, as from time to time amended and enforced as of the date thereof.

43 New Jersey Worker and Community Right To Know Act: Under the provisions of this regulation each bidder must furnish The County of Gloucester a "Material Safety Data Sheet" for each product they supply The County. These MSDS's should be submitted to the County upon award of the bid. They should be directed to the department(s) receiving the product or services. In addition, the vendors are required to comply with labeling requirements as detailed in the Act as well as all other applicable provisions of the Act.

44 The bidder should be aware, if awarded the contract, that they will be responsible for any and all subcontractors as well as themselves, that they, are required to comply with all applicable local, state, and federal safety, health, and environmental regulations, including provisions for protecting County employees and the public from construction hazards.

45 The successful bidder will be required to supply to the County Safety Office, a copy of their safety program and must also include a contact person to resolve any problems that may arise.

46 The County of Gloucester retains the right to have representatives of the County's Safety Staff inspect any construction project taking place on County property or through County auspices. The County reserves the right to stop work if an imminent hazard exists. The costs, if any created by a work stoppage due to unsafe conditions, will be borne by the contractor responsible for the unsafe condition.

47 Any prospective bidder who wishes to challenge a bid specification shall file such challenge in writing with the County Purchasing Department no less than three business days prior to the opening of the bids. Challenges filed after that time shall be considered void and having no impact on the contracting unit or the award of a contract. (40A: 11-13).

48 County of Gloucester Outside Contractor Safety Guidelines

In an effort to provide contractors with an overview of areas of concern, the following information is provided to all general contractors working on County property or under the County's auspices. It is the general contractor's responsibility to insure that their subcontractors are in compliance.

1) The safety of County workers and the general public is paramount.

2) An outside contact person is to be provided on each job.

3) Material Safety Data Sheets are to be provided to the Buildings and Grounds Department for all products to be used on the job. No less than a week's time is required for review by the Safety Staff. The Safety Staff reserves the right to request substitution of the product or process if there is determined to be a risk to employees.

4) Copies of all product MSDS's are to be maintained on site.

5) The general contractor shall assure compliance with all OSHA & PEOSH regulations. New Jersey's Indoor Air Quality Standard Section 12:100-13.5 (N.J.A.C., Chapter 13) is available upon request and Contractors shall be specifically responsible for complying with all other applicable laws, rules and regulations.

6) Any disruption in building services, loud noises or excessive dust should be anticipated and addressed prior to the commencement of the specific work involved and the disturbance eliminated or minimized to the maximum extent possible.

7) The general contractor is responsible for good housekeeping on the construction site. All exits and exit ways are to be kept free and clear of material storage, trash and equipment.

8) The County has a Hot Work Permit System. Hot work permits are to be secured through the County Fire Marshal at (856) 307-7137.

9) Access to the job site shall be provided to Buildings and Grounds representatives and the County Safety staff. County employees are not permitted in work areas unless accompanied by an authorized individual. The contractor has the right to restrict access to unauthorized individuals.

10) The County reserves the right to stop work if an imminent hazard exists. The costs, if any, created by the work stoppage are the responsibility of the general contractor if the general contractor or one of his subcontractors is determined to be responsible for the imminent hazard.

49**.** N.J.S.A. 52:32-55 et. seq. prohibits State and local public contracts with persons or entities engaging in certain investment activities in energy or finance sectors of Iran. N.J.S.A. 52:32-60.1 prohibits activities with Russia and/or Belarus.

50. N.J.A.C. 17:44-2.2 Authority to audit or review contract records

Relevant records of private vendors or other persons entering into contracts with covered entities are subject to audit or review by OSC pursuant to N.J.S.A. 52:15C-14(d)

"(The contract partner) shall maintain all documentation related to products, transactions or services under this contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request."

51. ***RIDER*** **DIFFERING SITE CONDITIONS N.J.S.A. 40A:11-16.7 et. seq.**

A. Differing Site Conditions.

(1) If the Contractor encounters differing site conditions during the progress of the work of the contract, the Contractor shall promptly notify the County (hereinafter "Contracting unit") in writing of the specific differing site conditions encountered before the site is further disturbed and before any additional work is performed in the impacted area.

(2) Upon receipt of a differing site conditions notice in accordance with paragraph one (1) of this subsection, or upon the Contracting unit otherwise learning of differing site conditions, the Contracting unit shall promptly undertake an investigation to determine whether differing site conditions are present.

(3) If the Contracting unit determines different site conditions that may result in additional costs or delays exist, the Contracting unit shall provide prompt written notice to the Contractor containing directions on how to proceed.

(4) (a) The Contracting unit shall make a fair and equitable adjustment to the contract price and contract completion date for increased costs and delays resulting from the agreed upon differing site conditions encountered by the Contractor.

(b) If both parties agree that the Contracting unit's investigation and directions decrease the Contractor's costs or time of performance, the Contracting unit shall be entitled to a fair and equitable downward adjustment of the contract price or time of performance.

(c) If the Contracting unit determines that there are no differing site conditions present that would result in additional costs or delays, the Contracting unit shall so advise the Contractor, in writing, and the Contractor shall resume performance of the contract, and shall be entitled to pursue a differing site conditions claim against the Contracting unit for additional compensation or time attributable to the alleged differing site conditions.

(5) Execution of the contract by the Contractor shall constitute a representation that the Contractor has visited the site and has become generally familiar with the local conditions under which the work is to be performed.

(6) As used in this subsection, "differing site conditions" mean physical conditions at the contract work site that are subsurface or otherwise concealed and which differ materially from those indicated in the contract documents or are of such an unusual nature that the conditions differ materially from those ordinarily encountered and generally recognized as inherent in the work of the character provided for in the contract.

B. Suspension of Work Provisions.

(1) The Contracting unit shall provide written notice to the Contractor in advance of any suspension of work lasting more than ten (10) calendar days of the performance of all or any portion of the work of the contract.

(2) If the performance of all or any portion of the work of the contract is suspended by the Contracting unit for more than ten (10) calendar days due to no fault of the Contractor or as a consequence of an occurrence beyond the Contracting unit's control, the Contractor shall be entitled to compensation for any resultant delay to the project completion or additional Contractor expenses, and to an extension of time, provided that, to the extent feasible, the Contractor, within ten (10) calendar days following the conclusion of the suspension, notifies the Contracting unit, in writing, of the nature and extent of the suspension of work. The notice shall include available supporting information, which information may thereafter be supplemented by the Contractor as needed and as may be reasonably requested by the Contracting unit. Whenever a work suspension exceeds 60 days, upon seven days' written notice, either party shall have the option to terminate the contract for cause and to be fairly and equitably compensated therefor.

(3) Upon receipt of the Contractor's suspension of work notice in accordance with paragraph (2) of this subsection, the Contracting unit shall promptly evaluate the Contractor's notice and promptly advise the Contractor of its determination on how to proceed in writing.

(4) (a) If the Contracting unit determines that the Contractor is entitled to additional compensation or time, the Contracting unit shall make a fair and equitable upward adjustment to the contract price and contract completion date.

(b) If the Contracting unit determines that the Contractor is not entitled to additional compensation or time, the Contractor shall proceed with the performance of the contract work, and shall be entitled to pursue a suspension of work claim against the Contracting unit for additional compensation or time attributable to the suspension.

(5) Failure of the Contractor to provide timely notice of a suspension of work shall result in a waiver of a claim if the Contracting unit can prove by clear and convincing evidence that the lack of notice or delayed notice by the Contractor actually prejudiced the Contracting unit's ability to adequately investigate and defend the claim.

C. Change in Character of Work Provisions.

(1) If the Contractor believes that a change directive by the Contracting unit results in a material change to the contract work, the Contractor shall so notify the Contracting unit in writing. The Contractor shall continue to perform all work on the project that is not the subject of the notice.

(2) Upon receipt of the Contractor's change in character notice in accordance with paragraph (1) of this subsection, the Contracting unit shall promptly evaluate the Contractor's notice and promptly advise the Contractor of its determination on how to proceed in writing.

(3) (a) If the Contracting unit determines that a change to the Contractor's work caused or directed by the Contracting unit materially changes the character of any aspect of the contract work, the Contracting unit shall make a fair and equitable upward adjustment to the contract price ad contract completion date. The basis for any such price adjustment shall be the difference between the cost of performance of the work as planned at the time of contracting and the actual cost of such work as a result of its changes in character, or as otherwise mutually agreed upon by the Contractor and the Contracting unit prior to the Contractor performing the subject work.

(b) If the Contracting unit determines that the Contractor is not entitled to additional compensation or time, the Contractor shall continue the performance of all contract work, and shall be entitled to pursue a claim against the Contracting unit for additional compensation or time attributable to the alleged material change.

(4) As used in this subsection, "material change" means a character change which increases or decreases the Contractor's cost of performing the work, increases or decreases the amount of time by which the Contractor completes the work in relation to the contractually required completion date, or both.

D. Change in Quantity Provisions.

(1) The Contracting unit may increase or decrease the quantity of work to be performed by the Contractor.

(2) (a) If the quantity of a pay item is cumulatively increased or decreased by 20 percent or less from the bid proposal quantity, the quantity change shall be considered a minor change in quantity.

(b) If the quantity of a pay item is increased or decreased by more than 20 percent from the bid proposal quantity, the quantity change shall be considered a major change in quantity.

(3) For any minor change in quantity, the Contracting unit shall make payment for the quantity of the pay item performed at the bid price for the pay item.

(4) (a) For a major increase in quantity, the Contracting unit or Contractor may request to renegotiate the price for the quantity in excess of 120 percent of the bid proposal quantity. If a mutual agreement cannot be reached on a negotiated price for a major quantity increase, the Contracting unit shall pay the actual costs plus an additional 10 percent for overhead and an additional 10 percent for profit, unless otherwise specified in the original bid.

(b) For a major decrease in quantity, the Contracting unit or Contractor may request to renegotiate the price for the quantity of work performed. If a mutual agreement cannot be reached on a negotiated price for a major quantity decrease, the Contracting unit shall pay the actual costs plus an additional 10 percent for overhead and an additional 10 percent for profit, unless otherwise specified in the original bid; provided, however, that the Contracting unit shall not make a payment in an amount that exceeds 80 percent of the value of the bid price multiplied by the bid proposal quantity.

(5) As used in this subsection, the term "bid proposal quantity" means the quantity indicated in the bid proposal less the quantities designated in the project plans as "if and where directed."

52. PROJECT LABOR AGREEMENTS SHALL BE UTILIZED FOR ANY PUBLIC WORKS CONTRACTS WITH AN ESTIMATE VALUE IN EXCESS OF $200,000.00 ARE SUBJECT TO THE PREVAILING WAGE LAW AS PER N.J.S.A. 52:38-2.

(a) That the County shall either directly negotiate in good faith a project labor agreement with one or more labor organizations; or, condition the award of a contract to a construction manager upon a requirement that the construction manager negotiate in good faith a project labor agreement with one or more labor organizations.

(b) That any bidder for the public works project refusing to agree to abide by the conditions of the project labor agreement or the requirement to negotiate a project labor agreement shall not be regarded as a responsible bidder.

(c) That each project labor agreement shall conform to the required provisions as set forth in N.J.S.A. 52:38-5, including recognized and registered apprenticeship programs, and a copy of said agreement may be forwarded to the Commission of Labor.

(d) Project Labor Agreement (PLA) and the Steelworkers Addendum are included in the Appendix and shall be included in your bid.

STATE OF NEW JERSEY—DIVISION OF PURCHASE AND PROPERTY
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN AND PROHIBITED ACTIVITIES IN RUSSIA-BELARUS

Quote Number: _____ Bidder/Offeror: _____

PART 1: CERTIFICATION
BIDDERS MUST COMPLETE PART 1 BY CHECKING EITHER BOX.
FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE.

Pursuant to law, any person or entity that is a successful bidder or proposer, or otherwise proposes to enter into a new or renew a contract, for good or services must complete the certification below prior to contract award to attest, under penalty of perjury, that neither the person or entity, nor any of parent entity, subsidiary or affiliate, is identified on the Department of Treasury's Russia, Belarus list or Chapter 25 list as a person or entity engaging in prohibited activities in Russia, Belarus or Iran. Before a contract for goods or services can be amended or extended, a person or entity must certify that neither the person or entity, no any parent entity, subsidiary, or affiliate, is identified on the Department of Treasury's Russia-Belarus list. Both lists are found on Treasury's website at the following web addresses:

http://www.nj.gov/treasury/administration/pdf/RussiaBelarusEntityList.pdf
state.nj.us/treasury/purchase/pdf/Chapter25List.pdf.

As applicable to the type of contract, the above referenced lists must be reviewed prior to completing the below certification.

A person or entity unable to make the certification must provide a detailed, accurate, and precise description of the activities of the person or entity, or of a parent entity, subsidiary, or affiliate, engaging in prohibited activities in Russia or Belarus and/or investment activities in Iran. The person or entity must cease engaging in any prohibited activities and provide an updated certification before the contract can be entered into.

If a vendor or contractor is found to be in violation of law, action may be taken as appropriate and as may be provided by law, rule or contract, including but not limited to imposing sanctions, seeking compliance, recovering damages, declaring the party in default, and seeking debarment or suspension of the party.

PLEASE CHECK THE APPROPRIATE BOX:

☐ **I certify, pursuant to law that neither the person or entity listed above, nor any parent entity, subsidiary, or affiliate appears on the N.J. Department of Treasury's lists of entities engaged in prohibited activities in Russia or Belarus pursuant to** N.J.S.A. 52:32-60. **I further certify that I am the person listed above, or I am an officer of representative of the entity listed above and am authorized to make this Certification on its behalf. Part 2 and sign and complete the Certification below.**

OR

☐ **I am unable to certify as above because person or entity and/or a parent entity, subsidiary, or affiliate I listed on the Department's Russia-Belarus list and/or Chapter 25 Iran List. I will provide a detailed, accurate and precise description of the activities as described in Part 2 below, and sign and complete the Certification below.** Failure to provide such will prevent the award of the contract to the person or entity, and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS AND/OR INVESTMENT ACTIVITIES IN IRAN
You must provide a detailed, accurate and precise description of the activities of the person or entity, or of a parent entity, subsidiary or affiliate, engaging in prohibited activities in Russia or Belarus and/or investment activities in Iran in the space below and, if needed on additional sheets provided by you.

_____
_____
_____
_____
_____

PART 3: CERTIFICATION OF TRUE AND COMPLETE INFORMATION

I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments there, to the best of my knowledge, are true and complete. I attest that I am authorized to execute this certification on behalf of the above-referenced person or entity.

I acknowledge that the **County of Gloucester** is relying on the information contained herein and hereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the **County of Gloucester** to notify the **County of Gloucester** in writing of any changes to the answers of information contained herein.

I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement)s_ with the **County of Gloucester** and that the **County of Gloucester** at its option may declare any contract(s) resulting from this Certification void and unenforceable.

Full Name _____ Title _____
Print

Full Name_____ Date:_____
Signature

NOTICE TO BIDDERS

(Business Registration Certificate)

BUSINESS REGISTRATION CERTIFICATE

Pursuant to N.J.S.A. 52:32-44, Gloucester County is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time of contract, purchase order, or other contracting document is awarded or authorized.

During the course of contract performance:

(1) The contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.

(2) The contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.

(3) The contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered in the State. Any questions in this regard can be directed to the Division of Taxation at (609) 292-6400. Form NJ-REG can be filed online at www.state.nj.us/treasury/revenue/busregcert.shtml.

Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of $25 for each day of violation, not to exceed $50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

Emergency Purchases or Contracts

For purchases of an emergent nature, the contractor shall provide its Business Registration Certificate within two weeks from the date of purchase or execution of the contract or prior to payment for goods or services, whichever is earlier.

Sample Business Registration



STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE
FOR STATE AGENCY AND CASINO SERVICE CONTRACTORS

DEPARTMENT OF TREASURY/
DIVISION OF REVENUE
PO BOX 252
TRENTON, N J 08646-0252

TAXPAYER NAME:
TAX REGISTRATION TEST ACCOUNT

TRADE NAME:
CLIENT REGISTRATION

TAXPAYER IDENTIFICATION#:
970-097-382/500

SEQUENCE NUMBER:
0107330

ADDRESS:
847 ROEBLING AVE
TRENTON NJ 08611

ISSUANCE DATE:
07/14/04

EFFECTIVE DATE:
01/01/01

FORM BRC(08-01)

Acting Director

This Certificate is NOT assignable or transferable. It must be conspicuously displayed at above address.

SAMPLE

NOTICE TO BIDDERS

To be in compliance with the affirmative action requirements, the successful bidder shall submit a federal affirmative action plan approval (which consists of a valid letter from the Office federal Contract compliance Programs) or a Certificate of Employee Information Report (submit a copy of this certificate prior to being awarded the contract).

If you do not have any of the above listed, before your company can be awarded the bid, our department will submit to you a Form AA-201 to be filled out and returned with your contract. The Form AA-201 will be utilized for procurement, professional or service contracting.

See Exhibit "B" attached.

NOTE:
No contract can be awarded without the submission of one of the above items for proof of affirmative action plan, completed and submitted to the department of purchasing.

EXHIBIT B MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A. 10:5-31 et seq.; N.J.A.C. 17:27-1.1 et seq.
CONSTRUCTION CONTRACTS

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

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity 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 by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable 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 age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. l7:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B, and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active “card carrying” members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or

subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

(l) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and nondiscrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) The contactor or subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred

pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7.

The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Dept. of LWD, Construction EEO Monitoring Program, and to the public agency compliance officer. The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the job programs for outreach and training of minorities and women.

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

The undersigned vendor further agrees on their company's receipt, knowledge and commitment to comply with:

EXHIBIT B
MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A. 10:5-31 et seq.; N.J.A.C. 17:27

CONSTRUCTION CONTRACTS

The undersigned vendor further agrees to furnish the required forms of evidence and understands that their contract/company's bid shall be rejected as non-responsive if said contractor fails to comply with the requirements of N.J.S.A. 10:5-31 and N.J.S.A. 17:27

Representative's Name/Title (Print): _____

Representative's Signature: _____

Name of Company: _____

Tel. No.: _____ **Date:** _____

AFFIRMATIVE ACTION PLAN MBE/WBE TRACKING FORM*

Definitions:

A Minority Business Enterprise (MBE) is defined as "a business which is independently owned and operated and is at least 51 percent owned and controlled by minority group members." Minority group members are defined as "persons who are Black, Hispanic, Portuguese, Asian-American, American Indian or Alaskan Natives."

A Women Business (WBE) is defined as "a business which is independently owned and operated and is at least 51 percent owned and controlled by women."

Using the definitions above, please check the following space which best describes your firm:

_____ Minority Business Enterprise (MBE)

_____ Women Business Enterprise (WBE)

_____ Neither

Company: _____

Name: _____
(Print)

Signature: _____

Title: _____

* This form is for information purposes only. Completion of this form is not required for purpose of bid. Your cooperation is appreciated.

County of Gloucester
PO Box 337
Woodbury, NJ 08096

CONTRACTOR(S) - SUBCONTRACTOR(S)
FOR COUNTY OF GLOUCESTER, STATE OF NEW JERSEY

As required by law, you must pay prevailing wages. In addition, any sub-contractor you employ must also pay prevailing wages. It is your responsibility to make sure your subcontractors are paying prevailing wages.

Gloucester County has a Wage and Hour Compliance Office. A representative of that office will periodically interview your employees on this project to confirm that they are, in fact, receiving the New Jersey prevailing wages and benefits.

In addition, immediately upon beginning the project, you must provide a certified copy of your weekly/bi-weekly payroll records and your subcontractors. Also your certified payroll must show hourly benefits and gross benefits that are paid each employee as set forth by New Jersey prevailing rates.

Hourly rate
Total hours
Hourly benefits
Gross benefits
Gross pay

Should any apprentice from another state presently be working in the State of New Jersey, they must now be paid the full journeyman's rate, unless they are a member of a collective bargaining unit whose jurisdiction, according to the agreement, covers territory within New Jersey.

The Wage and Hour Compliance Office is located at County of Gloucester, 254 County House Rd., Clarksboro, New Jersey 08020. Payrolls must be sent to the office within ten (10) days of payment of wages.

Should this be a non-union contractual firm, your employees are to receive the New Jersey prevailing rates plus all benefits in their weekly/bi-weekly wages.

Should contractor(s)/subcontractor(s) be from another state, the New Jersey prevailing wage determination and benefits must be paid.

You are to forward to the Office of Wage and Hour Compliance the initial manning report and the Monthly Project Manning Report. Copies to be sent as designated. Failure to comply and submit certified payrolls and manning reports could result in a stop payment order on any monies due. Additionally, any forms to be completed by the primary or subcontractors must be returned to the Office of Wage and Hour Compliance prior to the start of any project.

Signed: _____
(Contractor)

Date: _____
(Contractor T/A)

_____
(Telephone and Address)

_____
(Construction Location)

Please return to Gloucester County Wage and Hour Compliance Office, located at:

County of Gloucester 254 County House Rd., Clarksboro, New Jersey 08020, Attention: Wage and Hour Representative. Payrolls must be sent to the office within ten (10) days of payment of wages. This is a State statute.

Failure to comply and submit certified payrolls and manning reports could result in a stop payment of any monies due.

APPROVED APPRENTICEMENT FORM
FOR CONSTRUCTION PROJECTS

Apprenticeship is training in occupations that require a wide and diverse range of skills and knowledge, as well as maturity and independence of judgement. It involves planned, day-by-day training on the job and experience under proper supervision, combined with related technical instruction.

As practiced by modern industry, apprenticeship is a business-like system designed to provide workers entering industry with comprehensive training by exposing them to the practical and theoretical aspects of the work required in a highly skilled occupation. This is accomplished through structured training on the job and related theoretical instruction.

Under the National Apprenticeship Act, the Bureau of Apprenticeship and Training (BAT) is responsible for providing service to existing apprenticeship programs and technical assistance to organizations that would like to establish an apprenticeship program. The Bureau works very closely with State Apprenticeship Councils (SAC) and the educational system to deliver support services at the National, State and local level.

Approved Apprenticeship programs are usually available through local County Vocational Schools, through various Union Locals, and/or through the U.S. Department of Labor.

The U.S. Department of Labor for New Jersey may be reached at:

US Department of Labor
Bureau of Apprenticeship & Training
485 Route 1 South
Bldg. "E," Room 300
Islin, New Jersey 08830

The County has determined that it would be in the best interest of this particular project, and reasonably related to the specific work to be performed, that all bidders be required to participate in an approved apprenticeship program pursuant to standards established under the Department of Wage and Industry Act of 1948 (N.J.S.A. 34:1A-34 et. seq.). This requirement may be met by either showing a written agreement with a Union (**Which must be attached with your bid submission**) with an appropriate apprenticeship program, or by maintaining an in-house program that materially follows the guidelines for apprenticeship set forth by the Union of the same trade

All subcontractors used by the bidder shall also have an approved apprenticeship program (**Which must be attached with your bid submission**).

LIST OF TRADES FOR THIS PROJECT SUBMITTED BY THE VENDOR	APPRENTICESHIP PROGRAM ATTENDED

(**Certificate or Signatory Page must be attached**)

CONSTRUCTION BIDS

Subcontractor list: with each sub listed, a copy of their Contractor Registration Certificate must be provided to the County Purchasing Department prior to any contract being awarded.

THIS LIST IS REQUIRED BY N.J.S.A. 40A: 11-16

The following is a list of subcontractor(s) to complete:

ELECTRICAL:

1. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

2. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

3. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

Please check one below:

( ) I hereby certify that the above-listed subcontractor(s) have provided price quotations to this bidder; and if this bid is accepted shall be the sub-contractor(s) retained.

Or

( ) I hereby certify that no Electrical sub-contractors will be used on this project.

Signature: _____
(Bidder)

Sworn and subscribed

before me this_____
day of_____20___

NOTE:
Failure to complete, sign and notarize this certification and include it with your bid package shall result in your bid being deemed incomplete pursuant to N.J. S.A. 40A: 11-16.

Do not leave the subcontractor pages blank. If you do not intend to use any subcontractors, then you must so state that you will not be using subcontractors in the appropriate place on each page.

If you plan to use in-house employees for this trade, then you must include with your bid the name of the license holder for this trade and a copy of his/her license.

CONSTRUCTION BIDS

Subcontractor list, with each sub listed, a copy of their Contractor Registration Certificate must be provided to the County Purchasing Department prior to any contract being awarded.

THIS LIST IS REQUIRED BY N.J.S.A. 40A: 11-16

The following is a list of subcontractor(s) to complete:

PLUMBING AND GAS FITTING AND ALL KINDRED WORK:

1. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

2. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

3. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

NOTE:

In compliance with N.J.S.A. 45:14C-2(h)*, you must identify your licensed master plumber even if it is you or your employee.

_____ _____
Name of Plumber License Number

Please check one below:

( ) I hereby certify that the above-listed subcontractor(s) have provided price quotations to this bidder; and if this bid is accepted shall be the sub-contractor(s) retained.

Or

( ) I hereby certify that no Plumbing and Gas Fitting and All Kindred Work sub-contractors will be used on this project.

Signature: _____
(Bidder)

Sworn and subscribed

before me this_____
day of_____20___

NOTE:
Failure to complete, sign and notarize this certification and include it with your bid package shall result in your bid being deemed incomplete pursuant to N.J. S.A. 40A: 11-16.

Do not leave the subcontractor pages blank. If you do not intend to use any subcontractors, then you must so state that you will not be using subcontractors in the appropriate place on each page.

If you plan to use in-house employees for this trade, then you must include with your bid the name of the license holder for this trade and a copy of his/her license.

* N.J.S.A.14C-2(h) "Plumbing contractor" means any licensed master plumber, firm, partnership, corporation or other legal entity which undertakes or offers to undertake for another the planning, lying out, supervision, installing or making of additions, alterations and repairs in the installation of plumbing. In order to act as a "plumbing contractor," a licensed master plumber shall be the holder of not less than 10 percent of the issued and outstanding shares of stock in the corporation, or not less than 10 percent of the capital of the partnership, or not less than 10 percent of the ownership of any other firm or legal entity engaging in the business of plumbing contracting in the State and shall employ either journeymen plumbers or apprentice plumbers or both.

CONSTRUCTION BIDS

Subcontractor list, with each sub listed, a copy of their Contractor Registration Certificate must be provided to the County Purchasing Department prior to any contract being awarded.

THIS LIST IS REQUIRED BY N.J.S.A. 40A: 11-16

The following is a list of subcontractor(s) to complete:

STEAM & HOT WATER HEATING AND VENTILATING APPARATUS,
STEAM POWER PLANTS AND KINDRED WORK:

1. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

2. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

3. _____
   (Name of Subcontractor)

   _____
   (*License Number)*

Please check one below:

( ) I hereby certify that the above-listed subcontractor(s) have provided price quotations to this bidder; and if this bid is accepted shall be the sub-contractor(s) retained.

Or

( ) I hereby certify that no Steam & Hot Water Heating and Ventilating Apparatus, Steam Power Plants and Kindred Work sub-contractors will be used on this project.

Signature: _____
(Bidder)

Sworn and subscribed

before me this_____
day of_____20___

NOTE:
Failure to complete, sign and notarize this certification and include it with your bid package shall result in your bid being deemed incomplete pursuant to N.J. S.A. 40A: 11-16.

Do not leave the subcontractor pages blank. If you do not intend to use any subcontractors, then you must so state that you will not be using subcontractors in the appropriate place on each page.

If you plan to use in-house employees for this trade, then you must include with your bid the name of the license holder for this trade and a copy of his/her license.

CONSTRUCTION BIDS

Subcontractor list: with each sub listed, a copy of their contractor registration certificate must be provided to the county purchasing department prior to any contract being awarded.

THIS LIST IS REQUIRED BY N.J.S.A. 40A: 11-16

The following is a list of subcontractor(s) to complete:

STRUCTURAL STEEL & ORNAMENTAL IRON WORK:

1. _____
   (Name of Subcontractor)
   _____
   (*License Number)*
2. _____
   (Name of Subcontractor)
   _____
   (*License Number)*
3. _____
   (Name of Subcontractor)
   _____
   (*License Number)*

Please check one below:

( ) I hereby certify that the above-listed subcontractor(s) have provided price quotations to this bidder; and if this bid is accepted shall be the sub-contractor(s) retained.

Or

( ) I hereby certify that no Structural Steel & Ornamental Iron Work sub-contractors will be used on this project.

Signature: _____
(Bidder)

Sworn and subscribed

before me this_____
day of_____20___

NOTE:
Failure to complete, sign and notarize this certification and include it with your bid package shall result in your bid being deemed incomplete pursuant to N.J. S.A. 40A: 11-16.

Do not leave the subcontractor pages blank. If you do not intend to use any subcontractors, then you must so state that you will not be using subcontractors in the appropriate place on each page.

If you plan to use in-house employees for this trade, then you must include with your bid the name of the license holder for this trade and a copy of his/her license.

CONSTRUCTION BIDS

Subcontractor list: with each sub listed, a copy of their Contractor Registration Certificate must be provided to the County Purchasing Department prior to any contract being awarded.

THIS LIST IS REQUIRED BY THE COUNTY OF GLOUCESTER

The County of Gloucester requires that all bidders list all subcontractors (including any and all sub-sub contractors) who will complete work on this project. After bids are opened, no changes or substitutions to this subcontractor list will be permitted without written permission from the County of Gloucester Purchasing Department. Please include the name, address, and work to be completed by each subcontractor or sub-subcontractor:

1. _____
   (Name)
   _____
   (Address)
   _____
   (Work to be completed)

2. _____
   (Name)
   _____
   (Address)
   _____
   (Work to be completed)

3. _____
   (Name)
   _____
   (Address)
   _____
   (Work to be completed)

4. _____
   (Name)
   _____
   (Address)
   _____
   (Work to be completed)

NOTE:
Do not leave the subcontractor pages blank. If you do not intend to use any subcontractors then you must so state that you will not be using subcontractors in the appropriate place on each page.

NOTE: ALL CONTRACTORS

The Public Works Contractor Registration Act
N.J.S.A 34:11-56.48 et. seq.

Under the Act, no contractor/subcontractor will be permitted to bid on or engage in any contract for public work, as defined in (N.J.S.A. 34:11-56.26), unless that contractor/subcontractor registered with the New Jersey Department of Labor. The Act provides that upon registration with the Department, a public works contractor/subcontractor will be issued a certificate by the Department indicating compliance with the Act's requirements. The registration fee has been set at $300.00 per year. Upon effective date of the Act, public bodies will be expected to request production of such a certificate from those bidding on or engaging in public works projects.

It is important to note that the term "contractor" is defined in the Act as, "a person, partnership, association, joint stock company, trust, corporation or other legal business entity or successor thereof who enters into a contract which is subject to the provision of the "New Jersey Prevailing Wage Act," (N.J.S.A.34:11-56.25, et. seq.) and includes any subcontractor or lower tier subcontractor as defined herein."

Registration forms, copies of the Act, and other relevant information is available as of January 2000. To be placed on our mailing list, please contact:

Contractor Registration Unit
New Jersey Department of Labor
Division of Wage and Hour Compliance
P. O. Box 389
Trenton, New Jersey 08625-0389
Telephone: (609) 292-9464
Fax: (609) 633-8591
E-mail: contreg@dol.state.nj.us

As such, any bidder for this project shall submit with their bid or prior to any award, a copy of their certificate of registration for them and any subcontractors listed, issued by the New Jersey Department of Labor, Contractor Registration Unit Form that they submitted to the New Jersey Department of Labor, Contractor Registration Unit, prior to the bid opening date. A copy of the application is not a substitute for the copy of the certificate. Failure to submit this information shall be cause for rejection of your bid.

The bidder is responsible for obtaining copies of the certifications from all of the subcontractors for this project.

NOTICE TO BIDDERS

N.J.S. 40A: 11-22 provides in pertinent part that where a contracting unit requires a performance bond, the contracting unit must require from all bidders, a certificate from a surety company stating that the surety company will provide the contractor with a performance bond.

If a performance bond will be required from the successful bidder on this project, then consequently, all bidders shall submit, with their bid, a certificate in substantially the following form:

TO: GLOUCESTER COUNTY BOARD OF COUNTY COMMISSIONERS
WOODBURY, NJ 08096

RE: _____
(Contractor)

_____
(Project Description)

This is to certify that the _____
(Surety Company)

will provide to _____, a performance bond
(Contractor)

in the event that said _____ , is awarded a
(Contractor)

contract for the above project.

_____
Authorized Agent of Surety Company

** Certificate of Surety must be signed by an authorized agent or representative of a surety company and not by the individual or company submitting the bid.

CERTIFICATION REGARDING THE DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION LOWER TIER COVERED TRANSACTIONS

I am _____ of the firm of _____,
(Title) *(Organization)*
_____.
(Address of Organization)

CHOOSE ONE OF THE FOLLOWING

( ) **A**. I hereby certify on behalf of _____ that neither it nor
(Organization)
its principals are debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

( ) **B.** I am unable to certify to any of the statements set forth in this certification. I have attached an explanation to this form.

_____
(Signature)

_____
(Type Name and Title)

_____
(Date)

CERTIFICATION OF NON-DEBARMENT
FOR FEDERAL GOVERNMENT CONTRACTS

N.J.S.A. 52:32-44.1

This certification shall be completed, certified to, and submitted to the contracting unit prior to contract award, except for emergency contracts where submission is required prior to payment.

PART I: VENDOR INFORMATION	
Individual or Organization Name	
Physical Address of Individual or Organization	
Unique Entity ID (if applicable)	
CAGE/NCAGE Code (if applicable)	
Check the box that represents the type of business organization:	

☐Sole Proprietorship (skip Parts III and IV) ☐Non-Profit Corporation (skip Parts III and IV)

☐For-Profit Corporation (any type) ☐Limited Liability Company (LLC) ☐Partnership

☐Limited Partnership ☐Limited Liability Partnership (LLP)

☐Other (be specific): _____

PART II – CERTIFICATION OF NON-DEBARMENT: Individual or Organization			
I hereby certify that the **individual or organization listed above in Part I** is not debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Gloucester is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by the County of Gloucester to notify the County of Gloucester in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Gloucester, permitting the County of Gloucester to declare any contract(s) resulting from this certification void and unenforceable.			
Full Name (Print):		Title:	
Signature:		Date:	

PART III – CERTIFICATION OF NON-DEBARMENT: Individual or Entity Owning Greater than 50 Percent of Organization	
Section A (Check the Box that applies)	
☐	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of its voting stock, or of the partner in the partnership who owns more than 50 percent interest therein, or of the member of the limited liability company owning more than 50 percent interest therein, as the case may be.
Name of Individual or Organization	
Physical Address	
OR	

☐	No one stockholder in the corporation owns more than 50 percent of its voting stock, or no partner in the partnership owns more than 50 percent interest therein, or no member in the limited liability company owns more than 50 percent interest therein, as the case may be.
Section B (Skip if no Business entity is listed in Section A above)	
☐	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of the voting stock of the organization's parent entity, or of the partner in the partnership who owns more than 50 percent interest in the organization's parent entity, or of the member of the limited liability company owning more than 50 percent interest in organization's parent entity, as the case may be.
Stockholder/Partner/Member Owning Greater Than 50 Percent of Parent Entity	
Physical Address	
OR	
☐	No one stockholder in the parent entity corporation owns more than 50 percent of its voting stock, no partner in the parent entity partnership owns more than 50 percent interest therein, or no member in the parent entity limited liability company owns more than 50 percent interest therein, as the case may be.

Section C – Part III Certification

I hereby certify that no individual or organization that is debarred by the federal government from contracting with a federal agency owns greater than 50 percent of the **Organization listed above in Part I** or, if applicable, owns greater than 50 percent of a parent entity of the Organization listed above in Part 1 I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Gloucester is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award to the County of Gloucester to notify the County of Gloucester in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Gloucester, permitting the County of Gloucester to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

Part IV – CERTIFICATION OF NON-DEBARMENT: Contractor – Controlled Entities

Section A

☐	Below is the name and address of the corporation(s) in which the **Organization listed in Part I** owns more than 50 percent of voting stock, or of the partnership(s) in which the **Organization listed in Part I** owns more than 50 percent interest therein, or of the limited liability company or companies in which the **Organization listed above in Part I** owns more than 50 percent interest therein, as the case may be.

Name of Business Entity	**Physical Address**

****Add additional sheets if necessary****	
OR	
☐	The **Organization listed above in Part I** does not own greater than 50 percent of the voting stock in any corporation and does not own greater than 50 percent interest in any partnership or any limited liability company.

Section B (skip if no business entities are listed in Section A of Part IV)	
☐	Below are the names and addresses of any entities in which an entity listed in Part III A owns greater than 50 percent of the voting stock (corporation) or owns greater than 50 percent interest (partnership or limited liability company).

Name of Business Entity Controlled by Entity Listed in Section A of Part IV	**Physical Address**

Add additional Sheets if necessary
OR

☐	No entity listed in Part III A owns greater than 50 percent of the voting stock in any corporation or owns greater than 50 percent interest in any partnership or limited liability company.

Section C – Part IV Certification

I hereby certify that the **Organization listed above in Part I** does not own greater than 50 percent of any entity that that is debarred by the federal government from contracting with a federal agency and, if applicable, does not own greater than 50 percent of any entity that in turns owns greater than 50 percent of any entity debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the County of Gloucester is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by the County of Gloucester to notify the County of Gloucester in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the County of Gloucester, permitting the Count of Gloucester to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

INSTRUCTIONS FOR CERTIFICATION

1. By signing and submitting this certification, the contracting firm is providing the certification as set out below.

2. 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 the contracting firm knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the County may pursue available remedies including suspension and/or debarment.

3. The contracting firm shall provide immediate written notice to the County if at any time it learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the County for assistance in obtaining a copy of those regulations.

5. The contracting firm agrees by submitting this certification that, should the covered transaction be entered into, it shall 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.

6. The contracting firm further agrees by submitting this certification that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," without modification, in all subcontracts to this agreement as authorized by the County.

NOTICE: CONSTRUCTION/EXCAVATION CONTRACTS ONLY

UNDERGROUND FACILITY PROTECTION ACT
(N.J.S.A. 48:2-73)

ONE-CALL is an underground facilities damage prevention system that operates under the direction of the Board of Public Utilities. ONE-CALL maintains membership and service territory data on each operator of an underground facility. Excavators must contact the system prior to excavations and, in turn, ONE-CALL will notify the operators of the planned excavation. Operators must then locate and mark-out all of their facilities.

The attention of bidder is directed to the fact that the contractor is responsible to ascertain the location of any existing utility prior to any excavation work. Before starting any excavation work, the contractor shall contact the underground location service by calling 1-800-272-1000 or 1-908232-9570.

The provisions of any other law, rule, regulation or ordinance to the contrary notwithstanding, any permit or permission for a road opening, building, blasting, demolition or excavation granted by a public entity to an excavator that will result in excavation or demolition activity, shall not be effective until the excavator has notified the One-Call Damage Prevention System pursuant to Section 10 of the Act. This proof may be provided by supplying the public entity with the confirmation number assigned to the notice of intent pursuant to Subsection b. of Section 4 of this Act.

An excavator shall notify the One-Call Damage Prevention System established pursuant to Section 4 of this Act of its intent to engage in excavation or demolition not less than three business days and not more than ten business days prior to the beginning of the excavation or demolition.

A copy of proof of contacting the One-Call Damage Prevention System will be required with any County project that requires any excavation and/or demolition work. This proof shall consist of a verified copy of the One-Call Number issued for the project. This copy with the number must be given to the County department in charge of the project as part of authorization for future payments for the associated project.

A copy of this Act is on file in the Gloucester County Purchasing Department at 2 S. Broad Street, County Building, 2nd. Floor Woodbury, NJ 08096 or call
(1-856-853-3420).

ALTERNATE DISPUTE RESOLUTION:
MEDIATION

1. **Controversies and Claims Subject to Mediation:**
   Any controversy or claim arising from or related to the contract or the breach thereof, shall be settled by mediation.

   If a dispute between the County and the contractor arises during the course of the contract, the parties will attempt to resolve the dispute, in good faith, through mediation.

2. **Contract Performance Pending Mediation:**
   During mediation proceedings, the contractor shall continue to perform under the terms of the contract and the County shall continue to make payments under the terms of the contract.

3. **When Mediation May Be Demanded:**
   Prior to either party requesting or demanding mediation, they shall attempt to resolve the problem directly. The aggrieved party shall submit, in writing, to the other party, a notice of dispute.

   The other party shall respond in writing.

   Demand for mediation of any claim shall not be made until the earlier of the following:

   (a) Written notice of dispute is given to other party and written response is provided to the aggrieved party.

   (b) Thirty days after submission of original written claim by aggrieved party to other party and the other party has not responded in writing.

   A party who files a "Notice of Demand for Mediation" must assert in the demand all claims then known to that party on which mediation is permitted to be deemed. When a party fails to include a claim through oversight, inadvertence or excludable neglect, or when a claim has matured or been acquired subsequently, the mediator or mediators may permit amendments.

If a party submits a claim and is not satisfied with the written response received, the aggrieved party has forty-five (45) days from the receipt of the written response to file a request for mediation.

---

4. **Procedures to Request Mediation:**

   a) Either party may demand mediation by written notice to the other party. The written notice shall contain at least (1) a brief statement of the nature of the dispute, and (2) the name, address and the phone number of that party's designated representative for purposes of mediation.

   b) The other party shall designate its representative for mediation in writing no later than five (5) business days after receipt of the demand for mediation.

   c) The respective designees shall thereupon, and promptly, with due regard for the need for timely action, choose a mediator.

   d) If the parties cannot agree on a mediator, they shall choose a reputable mediation firm.

e) Any mediation firm so chosen shall present a list of at least five (5) proposed mediators to the parties and shall provide the parties with a summary of each person's qualifications to serve as mediator.

f) Each party shall rank the proposed mediators in order of preference.

g) The fifth and any lower ranked persons on each list will be excluded from further consideration.

h) The chosen mediator shall be the remaining person who is the combined highest-ranking mediator on both preference lists, after deleting all excluded persons.

- In the event of a tie, the mediator shall be chosen by lot.

5. **Procedures at Mediation:**
The mediation shall be conducted in such reasonable and efficient manner as may be agreed between the parties and the mediator or, in the lack of such an agreement, as may be determined by the mediator.

The parties will not be bound by the Rules of Evidence in presenting their positions before the mediator.

6. **Cost of Mediation**:
Each party will bear its own costs of participation in mediation and they will divide the costs of the mediator equally.

7. **Failure of Mediation:**
If, after a good faith effort to resolve the dispute through mediation, the dispute is not resolved, either party may terminate the mediation by written notice to the mediator and to the other party, whereupon either party may submit the dispute to the Superior Court of New Jersey, Gloucester County, for adjudication, which court shall have exclusive original jurisdiction over the dispute.

NON-COLLUSION AFFIDAVIT

State of New Jersey
County of Gloucester ss:

I certify that I am _____,
of the firm of _____, the bidder making the proposal for the above-named project, and that I executed the said proposal with full authority so to do; that said bidder has not, directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above-named project; and that all statements contained in said proposal and in this affidavit are true and correct, and made with full knowledge that the County of Gloucester relies upon the truth of the statements contained in said proposal and in the statements contained in this affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by _____ (N.J.S.A.52: 34-25)
(Name of Contractor)

Sworn and subscribed

before me this_____
day of_____20___

_____
(Also Type or Print Name of Affiant under Signature)

_____
Notary Public of

My Commission Expires: _____, 20 ____

NOTE:

This Form Must Be Completed, Notarized and Returned with Your Proposal

STATEMENT OF OWNERSHIP DISCLOSURE

N.J.S.A. 52:25-24.2

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name Organization: _____

Organization Address: _____

Part I Check the box that represents the type of business organization:

☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)

☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)

☐ For-Profit Corporation (any type) ☐ Limited Liability Company (LLC)

☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership (LLP)

☐ Other (be specific): _____

Part II

☐ The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. (**COMPLETE THE LIST BELOW IN THIS SECTION**)

OR

☐ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (**SKIP TO PART IV**)

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Address

Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed**.

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above**. The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Address

Part IV Certification

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the County of Gloucester is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with the County of Gloucester to notify the County of Gloucester in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the County of Gloucester to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

COUNTY OF GLOUCESTER
ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA

The undersigned Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Dated
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Acknowledged for:_____
(Print or Type Name of Bidder)

By:_____
(Print or Type Name of Authorized Individual)

Signature:_____

Title: _____ __

NOTE:

This Form Must Be Completed and Returned with Your Proposal

COUNTY COOPERATIVE CONTRACT PRICING EXTENSION OF PRICES TO LOCAL GOVERNMENT ENTITIES WITHIN THE COUNTY

The County of Gloucester acts as lead agency in a county cooperative contract purchasing system. Under this system, the County solicits competitive bids for certain items to be purchased. Local contracting units within the County may purchase under the terms and conditions of selected contracts awarded by the County without the necessity of securing formal bids. This is a county cooperative contract purchasing system as defined and regulated by N.J.A.C. 5:34-7. The System Name is Gloucester County Cooperative Contract Purchasing System. The System Identifier is **CK-01-GC**. The Systems' establishment was approved by the Director of the Division of Local Government Services.

The county, at its discretion and with the approval of the vendor, may permit only those contracting units located within the county's geographic boundaries to procure the provision and performance of goods and services for their own needs, subject to the specifications, terms and conditions set forth in the contract awarded by the county.

The county shall make the contract number available to any contracting unit within the county which seeks to purchase under the terms of a contact awarded by the county.

A county managing a county cooperative contract purchasing system shall include in the specifications the county's own requirements, stated in definite quantities. The county shall identify the contracting units which may purchase under the terms of the contract if awarded.

Each request for bids to be included in the county cooperative contract purchasing system by the county shall contain the following:

Language requiring uniform bid price(s) for the county.

ACCOMMODATION OF ONLY THOSE LOCAL CONTRACTING UNITS WITHIN THE COUNTY OF GLOUCESTER

( ) Check here if willing to provide the goods and services herein bid upon to local governmental contracting units located within the County of Gloucester, Cooperative contract purchasing system, CK-01-GC without substitution or deviation from specifications, size features, quality, price or availability as herein set forth. It is understood that orders will be placed directly by the contracting units, subject to the overall terms of the contract to be awarded by the County of Gloucester, and that no additional service or delivery charges will be allowed except as permitted by theses specifications.

( ) Check here if not willing to extend prices to contracting units located in the County of Gloucester affect consideration of this bid with respect to the needs of the County of Gloucester.

A statement as to the procedure to be followed in the event that the lowest responsible bidder declines to extend prices to the registered members. The contract for the stated needs of the county will be awarded to the lowest responsible bidder, and specifically not made available to contracting units within the county.

Only counties and municipalities acting pursuant to the conditions set forth in this chapter may aggregate residential and business customers for gas supply or for electric generation services.

A cooperative pricing system undertaking energy aggregation in which the lead agency is not a county or municipality and the membership includes a mix of local contracting units including municipalities and counties, shall not include municipalities and counties who seek to provide energy to residents and businesses.

Two or more contracting units may join together to form a cooperative pricing system for the sole specific purpose of purchasing energy, or an existing registered cooperative purchasing system may add energy as a commodity to be purchased, pursuant to the Electric Discount and Energy Competition Act N.J.S.A. 48:3-49 et. seq. and the Interim Government Energy Aggregation Program Standards promulgated by the Board of Public Utilities.

The purchase of energy shall be subject to the terms and conditions of the bid specifications and a master contract. The specifications shall be drafted pursuant to Section 4.1a and 4.1b, Bidding Specifications of the Interim Government Energy Aggregation Program Standards promulgated by the Board of Public Utilities.

Take and pay contracts for the purchase of energy, where the government aggregator commits to pay for certain amount of energy, whether or not the energy is actually received or used by the government aggregator or participants in a cooperative pricing system are specifically prohibited.

Notwithstanding any of the restrictions or conditions set forth in this chapter, the lead agency of a cooperative purchasing system shall determine prior to the solicitation of bids whether the estimates submitted by a duly registered member of the system shall be considered firm and binding or a member may withdraw its estimate even after a supplier has been selected.

Withdrawal of Bid Notice
(N.J.S.A. 40A:11-23.3)

Permission for Bidder to Withdraw a Bid Due to a Mistake in Certain Circumstances

N.J.S.A. 40A:11-23.3 authorizes a bidder to request withdrawal of a public works bid due to a mistake on the part of the bidder. A mistake is defined by N.J.S.A. 40A:11-2(42) as a clerical error that is an **unintentional and substantial computational error** or **an unintentional omission of a substantial quantity of labor, material, or both, from the final bid computation.**

A bidder claiming a mistake under N.J.S.A. 40A:11-23.3 must submit a request for withdrawal, **in writing**, by certified or registered mail to Kimberly Larter, Qualified Purchasing Agent, Gloucester County Purchasing Department, 2 South Broad Street, 1st Floor County Administration Building, Woodbury, New Jersey 08096. The bidder must request withdrawal of a bid due to a mistake, as defined by the law, within five business days after the receipt and opening of the bids. Since the bid withdrawal request shall be effective as of the postmark of the certified or registered mailing, Kimberly Larter, Qualified Purchasing Agent, Gloucester County Purchasing Department, may contact all bidders, after bids are opened, to ascertain if any bidders wish to, or already have exercised a request to withdraw their bid pursuant to N.J.S.A. 40A:11-23.3.

A bidder's request to withdraw the bid **shall** contain evidence, including any pertinent documents, demonstrating that a mistake was made. Such documents and relevant written information shall be reviewed and evaluated by the public owner's designated staff pursuant to the statutory criteria of N.J.S.A. 40A:11-23.3.

The public owner will not consider any written request for a bid withdrawal for a mistake, as defined by N.J.S.A. 40A:11-2(42), by a bidder in the preparation of a bid proposal unless the postmark of the certified or registered mailing is within the five business days following the opening of bids.

Insurance Requirements for Contractors

Low Hazard - Artisan-type contractors

- **General and Auto Liability limits are reduced to $500,000**

Medium Hazard - Roofers, plumbers with minor digging, landscapers, bldg. maintenance.

- **General and Auto Liability limits are reduced to $1,000,000**

High Hazard - Excavation, road work, building construction/renovation

- **General and Auto Liability limits are per below.**
-

The Contractor shall not commence work under this contract until it has obtained the insurance required under this section. All coverage shall be with insurers must be licensed and admitted to do business in New Jersey and acceptable to the County.

COMMERCIAL GENERAL LIABILITY INSURANCE

During the life of this contract the Contractor shall procure and maintain Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than $5,000,000* per occurrence and/or aggregate combined single limit for Personal Injury, Bodily Injury and Property Damage. Coverage shall include the following: (A.) Contractual Liability; (B.) Products and Completed Operations; (C.) Independent Contractors Coverage; (D.) Broad Form General Liability Extensions or equivalent; (E.) Deletion of all Explosion, Collapse, and Underground (XCU) Exclusions.

MOTOR VEHICLE LIABILITY INSURANCE

During the life of this contract the Contractor shall procure and maintain Motor Vehicle Liability Insurance, including applicable No-Fault coverage, with limits of liability not less than $5,000,000*per accident combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

*Please note: A primary general and auto liability limit of $1,000,000 and an excess/umbrella limit of $4,000,000 will satisfy the above requirements in lieu of $5,000,000 primary limit.

WORKERS' COMPENSATION

During the life of this contract the Contractor shall procure and maintain Workers' Compensation insurance, including Employers' Liability Coverage in accordance with the statutes of the State of New Jersey.

ADDITIONAL INSURED

The following shall be Additional Insured on the general liability policy: The County of Gloucester, including all elected and appointed officials, all employees and volunteers, all boards, commissions and/or authorities and their board members, employees, and volunteers.

This coverage shall be primary to the Additional Insured, and shall not be contributing with any other insurance or similar protection available to the Additional Insured, whether other available insurance be primary, contributing or excess.

PROOF OF INSURANCE COVERAGE

The Contractor shall provide the County at the time the contract is returned to them for execution, Certificate(s) of Insurance evidencing such required coverage's.

CONTINUATION OF COVERAGE

If any of the above coverage's expire during the term of this contract, the Contractor shall deliver renewal Certificate(s) to the County at least ten (10) days prior to the expiration date.

BID FORM

The Bidder has carefully examined the specifications, plans and form of contract for the project named above. The Bidder has made himself familiar with the site, and will contract to carry out and complete said project as specified and delineated at the price per unit measure or lump sum for each scheduled item of work stated in the following proposal.

It is understood that the Total Price for the entire contract stated by the undersigned in the Schedule is based on the estimated quantities and will control in the awarding of the contract. It is further understood that the quantities stated in this Schedule of Prices for the various items are estimated only and may be increased or decreased. Payment will be made only for the actual quantity of authorized work done under each scheduled item.

The Bidder agrees that the price bid shall apply to actual quantities required, approved and used during the Work, including Addenda. He further agrees to complete the entire work for this Contract within **TWO HUNDRED SEVENTY (270) CALENDAR DAYS** from the date specified in the Notice-to-Proceed. He further agrees that the work will be substantially completed for this Contract within **TWO HUNDRED FORTY (240) CALENDAR DAYS** from the date specified in the Notice-to-Proceed.

The Bidder hereby agrees to be bound by the award of the Bid, and if awarded the Contract on this Bid, to execute the Contract and the required Bonds and Insurance Certificates, and to furnish all other information and documents required by the Contract Documents within the time limits specified.

The Bidder understands that Owner reserves the right to reject any or all Bids, or to waive any informality or technicality of any Bid, in the interest of the Owner.

If this Bid shall be accepted by Owner, and the Bidder shall fail to execute the Contract as aforesaid, then Owner shall be entitled to recover from the Bidder the Bid Bond, and any other penalty specified in the Contract Documents.

The signer of this Proposal as Bidder declares:

That he has received and examined the Contract Documents, including the Advertisement for Bidders, Instructions to Bidders, Contract Agreement, General Conditions, Supplementary Conditions, Specifications, and Addenda, if any.

That he has examined the site of the work.

In submitting this Proposal, Bidder agrees:

To accept the provisions of the Instructions for Bidders including disposition of Bid Security.

To enter into and execute a Contract, if awarded on the basis of this Proposal, and to furnish the Surety Bonds required by the General and Supplementary Conditions.

To accomplish the work in accordance with the Contract Documents and to complete the work in the time stipulated in the Information for Bidders.

The bidder understands that a detailed and balanced schedule of values will be required under this contract. Bidder understands and agrees that not all items under the Owner approved schedule of values will be necessary under this contract and that the Owner may elect not to authorize the Contractor to perform work under an individual item(s). The bidder also understands that the Owner may increase or decrease the quantity of work to be done under any item and that the Contractor will only be paid for actual quantity of work provided based on the prices delineated under the Owner approved schedule of values.

It is recognized that no two pieces of equipment and no two products are engineered or designed exactly the same. Trade names, brand names and models specified herein are provided to establish a minimum standard of quality acceptable to the Owner for this bid. Substitute brands, makes and models shall be considered and reviewed on the basis of their ability to perform the specified tasks or provide the same quality of goods as specified in the Owner's bid. This is known as an "Equivalent".

If the bidder seeks to provide an Equivalent product or good, the bidder shall with its bid submission include specifications or cut sheets for such proposed Equivalent product or good. The Owner's Architect/Engineer for the bid shall review the submission provided by the bidder to determine whether the product or good is an Equivalent to the bid specification. The Owner's Architect/Engineer for the bid shall have the final decision on whether a bidder's submitted product specifications are an Equivalent to the named product(s) or good(s) in this bid.

Should any requirements in the contract documents be found to conflict with the Owner’s general bid boilerplate (the ITB pages) the general bid boilerplate provisions and language shall prevail.

If the Contractor fails to complete the project and each and every part and appurtenance thereof fully, entirely and in conformity with the provisions of the contract within the times stated in the contract, or within such further time as may have been granted in accordance with the provisions of the contract, then the Owner may withhold permanently from the Contractor’s total compensation the appropriate amount of $500 for each and every day that the work remains incomplete, which said amount shall not be considered a penalty, but liquidated damages for the loss, inconvenience and extra expense to the Owner by such delays.

The Bidder proposes to furnish all labor, materials and equipment required to complete the work in every detail, in accordance with the plans, specifications and other contract documents prepared by Bach Associates, at and for the following Prices:

Base Bid

The below (in numbers) and the following (in words) lump sum base bid includes all labor, superintendence, materials, tools, transportation, plant and equipment and all means of construction necessary and reasonably incidental to complete all the work and improvements to be performed under the Base Bid as specified in the Bid Documents and Specifications for "Harrison Township EMS Building" as prepared by Bach Associates, PC and dated October 26, 2026.

Materials and labor obviously a part of the work and necessary for the proper installation and/or operation of same, although not specifically indicated on the Contract Drawings, the specifications, and /or listed on this Proposal bid form and will be provided as if called out in detail at no additional cost to the Owner.

Construction Allowances

A $ 15,000.00 lump sum allowance is to be included in the total price bid for Base Bid and is intended to be used if and where directed for work associated with the project, throughout the course of construction.

A $20,000 allowance for new exterior signage for a pylon sign and the front elevation is to be included in the total price bid for Bid Item and included in the schedule of values as a separate line item.

Total allowance for this project is $35,000 and must be included with total price bid.

Uniformed Law Enforcement Officers Requirement

This bid includes $0.00 in fees for traffic control measures performed by Uniformed Law Enforcement officers as the proposed work affects County/Municipal Rd. Estimated hourly costs for police personnel with vehicles is included on Exhibit R of the Instructions to Bidders document. Bidder is responsible for any fees associated with traffic control by uniformed law officers and the fees must be included in the Total Bid Price.

Total fees for Uniformed Law Enforcement Officers for this project is $0.00 and must be included with total price bid.

Special Inspections and Testing

Any special inspections or testing listed in specification section 013113 JOB COORDINATION and listed as required, shall be included in the total base bid of the project.

SUBMITTED BID PAKCAGE MUST INCLUDE IDENTIFICATION OF SUBCONTRACTORS AS LISTED IN CORRESPONDING EXHIBIT IN INSTRUCTIONS TO BIDDERS DOCUMENT.

Total Contract Amount BASE BID including $35,000.00 CONSTRUCTION ALLOWANCES, and $0.00 Uniformed Law Enforcement Officers fee:

Total Allowances and Fees: $35,000.00

Bid Price exclusive of allowances and fees (In Numbers):_____

TOTAL BID PRICE INCLUDING ALLOWANCES (In Numbers) $_____

(In words)_____

_____

Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern).

BID FORM (CONTINUED)

BIDDER'S SIGNATURE:

A. If a Corporation:

Name of Bidder: _____

Authorized Signature: _____

Name of Person Signing: _____

Title of Person Signing: _____

Dated: _____

Business Address: _____

Business Telephone Number: _____

Incorporated under the laws of the State of: _____

B. If a Partnership, Individual, or Non-Incorporated Organization:

Name of Business Entity: _____

Authorized Signature: _____

Name of Person Signing: _____

Title of Person Signing: _____

Dated: _____

Business Address: _____

Business Telephone Number: _____

END OF DOCUMENT

ALLOWANCE FORM

PART 1 - GENERAL

1.1 DESCRIPTION OF THE WORK: The Contractor shall provide for a $15,000 allowance for “if and where work” as directed by the Owner and/or Architect.

1.2 DESCRIPTION OF THE WORK: The Contractor shall provide for a $20,000 allowance for new exterior signage for a pylon sign and the front elevation as directed by the Owner and/or Architect.

1.3 The Contractor will only be paid for actual work directed by the Owner.

END OF SECTION

AGREEMENT FORM

1. Owner-Contractor Agreement Form: AIA A101, Owner-Contractor Agreement Form - Stipulated Sum. A draft of the agreement is included as an appendix to these specifications.

END OF SECTION

DEFINITIONS

For the purposes of these specifications, and the accompanying drawings, the following definitions shall apply. This listing of definitions is not intended to be all-inclusive, but rather a clarification of several terms which are commonly used within these documents to describe the contractor's responsibilities under this contract. All other terms shall be defined by the current edition of Webster's unabridged dictionary, and, where appropriate, the best standards of the construction industry.

1.1 ALLOWANCE - Final scope for a certain item will be made in the future by the Owner. The Contractor is to include a specified amount of funds in the base contract to cover each identified task in the base bid. Expenditure of Allowance funds shall be substantiated by paid invoices or other means prior to being approved for payment. Unspent Allowance funds shall be credited back to the Owner.

1.2 BID ALTERNATE - A specifically stated portion of the work which is to be bid separately from the base bid, and which the owner may, at their sole discretion, decide to accept or reject in order to meet budgetary requirements. A *bid alternate* will be an "Add Alternate" describing work which would result in a more costly project.

1.3 BUILDER'S OPTION - Where an alternative material/method may be identified as equally satisfactory, a *builder's option* may be stated, which allows the contractor to choose among the stated alternatives in order to achieve the best price for the work. The Contractor shall identify which method will be utilized, and remain consistent throughout the project. No change orders shall be awarded if a contractor elects to use the more costly material/method available from the stated *builder's option*(s).

1.4 UNIT PRICE - Due to the undefined nature of certain aspects of the work (especially so in renovation projects where it is likely that concealed conditions will exist which will have an impact on the scope of repair work), the Owner may request *Unit prices* in order to predetermine the costs associated with specific products or activities of the Contractor. *Unit prices* will be established for selected items and/or specific improvements and will be referred to as the basis of approval for any change orders requested, where applicable. A list of *unit prices* will be provided to each subcontractor by the Owner, as applicable for their trade(s), and the costs will be negotiated prior to commencement of the work.

END OF SECTION

GENERAL CONDITIONS

1. General Conditions: AIA A201, General Conditions of the Contract for Construction. Refer to Appendix A201 as amended and as included as an appendix to these specifications.

END OF SECTION

SAFETY REQUIREMENTS AND PROTECTION OF PROPERTY

PART 1 – GENERAL

1.1 CONTRACTOR'S RESPONSIBILITY FOR SAFETY

A. The Contractor shall do whatever work is necessary for safety and be solely and completely responsible for conditions of the job site, including safety of all persons (including employees) and property during the Contract period. This requirement shall apply continuously and not be limited to normal working hours.

1.2 FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS

A. Safety provisions shall conform to the Federal and State Departments of Labor Occupational Safety and Health Act (OSHA), and all other applicable federal, state, county, and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these Contract Documents, where any of these are in conflict, the more stringent requirement shall be followed. The Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

1.3 SAFE ACCESS

A. The Contractor shall at all times provide proper facilities for safe access to the work by Owner, his representatives, or authorized government officials.

1.4 CONSTRUCTION SAFETY PROGRAM

A. The Contractor shall develop and maintain for the duration of this Contract, a safety program that will effectively incorporate and implement all required safety provisions. The Contractor shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

B. The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

1.5 SAFETY EQUIPMENT

A. The Contractor, as part of his safety program, shall maintain within an office or other well-known place at the job site, safety equipment applicable to the work as prescribed by the governing safety authorities, all articles necessary for giving first-aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of any person who may be injured on the job site.

B. The Contractor shall do all work necessary to protect the general public from hazards and shall be furnished in sufficient amount to safeguard the public and the work.

C. The performance of all work and all completed construction particularly with respect to ladders, platforms, openings, scaffolding, shoring, lagging, machinery guards and the like, shall be in accordance with the applicable governing safety authorities.

D. During construction, the Contractor shall construct and at all times maintain satisfactory and substantial temporary chain link fencing, solid fencing, railing, barricades or steel plates, as applicable, at all openings, obstructions, or other hazards in streets, sidewalks, floors, roofs, and walkways, all such barriers shall have adequate warning lights as necessary, or required, for safety.

1.6 ACCIDENT REPORTS

A. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the appropriate governmental agencies and to the Engineer. In addition, the Contractor must promptly report in writing to the appropriate governmental agencies and to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

B If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the appropriate governmental agencies and to the Engineer, giving full details of the claim.

1.7 TRAFFIC SAFETY AND ACCESS TO PROPERTY

A. Comply with all rules and regulations of the city, state, and county authorities regarding closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission of the Owner. Conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits, protect all obstructions within traveled roadways by installing approved signs, barricades, and lights where necessary for the safety of the public. The convenience of the general public and residents adjacent to the project, and the protection of persons and property are of prime importance and shall be provided for in an adequate and satisfactory manner.

B. Where traffic will pass over backfilled trenches before they are paved, the top of the trench shall be maintained in a condition that will allow normal vehicular traffic to pass over, temporary access driveways must be provided where required. Cleanup operations shall follow immediately behind backfilling and the work site shall be kept in an orderly condition at all times.

C. When flagmen and guards are required by regulation or when deemed necessary for safety, they shall be furnished with approved orange wearing apparel and other regulation traffic control devices.

1.8 TRAFFIC CONTROL

A. Traffic control procedures and devices used on all local, county, and state rights-of-way shall meet the requirements of the applicable current laws and regulations for traffic control.

1.9 SNOW REMOVAL

A. On-site snow removal shall be the Contractor's responsibility wherever construction has not been completed. Snow removal shall be performed promptly and efficiently by means of suitable equipment whenever necessary for safety, and as may be directed.

1.10 ACCESS FOR POLICE, FIRE, AND POSTAL SERVICE

A. Notify the fire department and police department before closing any street or portion thereof. No closing shall be made without the Owner's approval. Notify said departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, without special written permission from the fire department, conduct operations with the least interference to fire equipment access, and at no time prevent such access.

B. The Contractor shall leave his night emergency telephone number or numbers with the police department so that contact may be made easily at all times in case of emergencies.

1.11 FIRE PREVENTION AND PROTECTION

A. The Contractor shall perform all work in a fire-safe manner, He shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires, The Contractor shall comply with applicable federal, local, and state fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

1.12 WATCHMEN

A. The Contractor, where necessary to safeguard the work and equipment, shall employ a licensed, uniformed watchman or watchmen physically capable of adequately patrolling the whole of the work, who shall be at the site of the work at all times, except during ordinary working hours, from the beginning to the date of acceptance of the work.

1.13. CONTRACTOR TO SAFEGUARD EXISTING UTILITIES

A. The Contractor shall perform all work including excavation, dewatering, and demolition operations, in such a manner as to avoid damage to existing buildings, fire hydrants, power poles, lighting standards, and all other existing utilities, public or private.

1.14 PROTECTION OF PUBLIC PROPERTY

A. The Contractor shall employ such means and methods as necessary to adequately protect public property and property of the owner against damage, In the event of damage to such property, the Contractor shall, at his own expense, immediately restore the property to a condition equal to its original condition and to the satisfaction of the Engineer and the owner of said property.

1.15 PROTECTION OF PRIVATE PROPERTY

A. Protect stored materials and other items located adjacent to the proposed work. Notify property owners affected by the construction at least 48 hours in advance of the time construction begins. During construction operations, construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to his residence or place of business for a period exceeding 8 hours, unless the Contractor has made special arrangements with the affected persons.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION

SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. General Notes.
2. Work covered by Contract Documents.
3. Contractor use of premises.
4. Occupancy requirements.

1.2 GENERAL NOTES

Project Name: Harrison Township EMS Building, Mullica Hill, New Jersey, Gloucester County, New Jersey
Project Number: GC2023-5
Location: 169-171 Bridgeton Pike, Mullica Hill, New Jersey 08062

New site work includes: clearing, grading, paving, striping and signage, flatwork, curbs, rain water management and retention. New building work includes: new masonry footing, foundation and flatwork, new wood framed building, gutters and downspouts; exterior and interior building sealants as required; interior partitions and doors; exterior doors and windows; floor, wall, and ceiling finishes; complete HVAC system, ductwork, and controls; electrical system, wiring, conduit, and devices as indicated, interior and exterior lighting; electronic control and access systems; fire alarm system; plumbing system including water heater(s) as indicated, domestic and waste lines, plumbing fixtures. All materials shall be provided and installed in the manner described in the plans and specifications or according to industry best practices.

A. This project is subject to the provisions of the New Jersey Uniform Construction Code [N.J.A.C. 5:23]. The Contractor shall verify all code requirements and bring any discrepancies between code requirements and the construction documents to the attention of the Architect prior to commencing with construction.

B. It is the Contractor's responsibility to inspect and assess the project and to fulfill the intent of the work indicated by the contract documents. Contractor shall verify all conditions and dimensions within the contract limits. Deviations from the contract documents necessitated by field conditions shall be brought to the attention of the Architect.

C. Contractor shall bring errors and omissions which may occur in contract documents to the attention of the Architect and instructions shall be obtained from the Architect before proceeding with affected work. The Contractor will be held responsible for the results of any errors, discrepancies, or omissions in the contract documents which can readily or reasonably be determined and for which the Contractor failed to notify the Architect before construction and/or fabrication of subject work.

D. Details and sections on the drawings are taken at specific locations and are intended to serve as typical construction for all similar conditions. Modifications shall be made by Contractor to accommodate minor variations.

E. Do not scale the drawings. Refer to written text and dimensions for information. The Contractor and Sub-Contractor shall verify all dimensions and job conditions at the job site sufficiently in advance of work to be performed to assure the orderly progress of the work.

F. All dimensions are to face of GWB and face of block unless noted otherwise drawings.

G. The Contractor shall make no structural changes without written approval of the Architect. Contractor shall insure safety and stability of structure(s) at all times during the construction period.

H. The Contractor shall limit the use of the premises to the areas indicated. Portions of the site beyond areas on which work is indicated are not to be disturbed. The Contractor shall maintain the premises clean and free of all trash, debris and shall protect all adjacent work from damage, soiling, paint overspray, etc. All fixtures, equipment, glazing, floors, etc., shall be left clean and remain ready for occupancy throughout the duration of the project.

I. Do not unreasonably encumber the work area with materials or equipment. Confine stockpiling of materials to the areas approved by the Owner. If additional storage is necessary, obtain and pay for such storage off site. Maintain the site in a clean and sanitary condition.

J. Contractor to provide temporary protection to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent spaces from damage.

K. Contractor to keep project area clean and free of debris. Contractor shall maintain a supply of hardhats for use by visitors to the site and enforce the use thereof.

L. The Contractor shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality. Comply fully with manufacturers' instructions. Protect installed work and provide special protection where specified in individual specification Sections.

M. All applicable local, state and federal regulations shall be met for handicap accessible buildings.

N. The Contractor shall review the Contract Drawings and Specifications for other items of work required to provide a complete project and shall provide them in his Total Price Bid so as to impose no additional cost to the Owner for the completion of this project.

O. The Contractor shall be responsible for obtaining all necessary local approvals, permits, registrations and/or certifications and construction. The Contractor must follow and comply with all applicable requirements and standards as required under the approvals, permits, registrations and/or certifications and construction permits obtained for this project. Also, reference the “Supplementary Conditions” for additional permit requirements.

P. The Owner and its Architect shall not be responsible for job safety. The Contractor shall be responsible for all job safety requirements for his employees and sub-contractors in the performance or the work under this project.

Q. The Contractor shall supply, place, and maintain at all times during the term of the Contract such safety equipment and procedures as are required for protection of persons and property.

R. The Contractor is responsible for all lines, elevations, and measurements, exercising precaution to verify all dimensions shown on the Contract Drawings.

S. The Contractor shall be responsible for surface restoration work as required to complete the installation and restore all areas affected due to the performance of the work under this contract. All affected areas shall be left in the same or in a condition better than existed before the start of construction or as shown on the Contract Drawings.

1.3 WORK COVERED BY CONTRACT DOCUMENTS – BASE BID & ADD/ALTERNATES

A. Provide and pay for all labor, superintendence, materials, tools, transportation, services, licenses, taxes, equipment and all means of construction necessary and reasonably incidental to the completion of the improvements required for the “Harrison Township Hill EMS Building”, in Mullica Hill, New Jersey as specified herein and as shown on the Contract Drawings.

B. All materials and labor obviously a part of the work, and as necessary for proper installation and/or operation of same, although not specifically indicated on the Contract Drawings and/or in the Specifications shall be provided by the Contractor as if called in detail without additional cost to the Owner.

C. The work for this project under the Base Bid includes the following:

1. The preparation of an existing site for construction of new site improvements and new 1-story building.

2. The work includes, but is not limited to: grading, concrete and block, asphalt paving, framed walls and wood framed roof, wall, ceiling, and floor finishes as indicated, lighting, doors and hardware, low voltage door entry system, lighting, power and outlets, fire alarm system, HVAC system, plumbing system, safety devices.

3. Without intending to limit or restrict the amount of work included and solely for the convenience of the Contractor, the major items of work included shall comprise the following:

i. Site preparation, masonry, concrete and asphalt construction, site lighting, and signage.
ii. New interior walls, partitions and doors, ceilings, MEP and fire protection infrastructure as indicated and required.
iii. Complete finish of all building and site elements including floor, wall, and ceiling finishes, envelope components, cladding and lighting, and any other items required for a complete project, and other items shown and/or listed on the attached contract drawings. Installation shall include all labor required by the manufacturer to provide a completed project as described on the attached contract drawings. All final dimensions shall be confirmed by the Contractor in the field prior to beginning construction.

1.4 CONTRACTOR USE OF PREMISES

A. Limit use of the premises to construction activities in areas indicated.

1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

2. Contractor to secure and protect work area from rest of the facility for dust and noise control.

3. Contractor to coordinate work under this bid with other work being performed at the project location to maintain access and project schedules throughout duration of the work under this bid.

END OF SECTION

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 BID/PAY ITEMS / SCHEDULE OF VALUES

A. All payments or credits shall be made on the basis of the TOTAL PRICE BID by the Contractor. The Contractor shall submit a detailed and balanced schedule of values. Following the acceptance of the schedule of values by the Owner, progress payments may be requested based on the approved schedule.

B. The Contractor shall prepare his schedule of values so that it reflects the actual costs which the bidder anticipates the performance of work under each item delineated so that the item includes all costs associated with the bidders anticipated profit, overhead and costs to perform the work.

C. The Owner may increase or decrease the quantity of work to be done under any item and that the Contractor will only be paid for actual quantity of work provided based on the prices delineated under the Owner approved schedule of values.

D. The schedule of values will be considered materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

E. No progress payments will be made for Lump Sum items for which the Contractor has not included a price breakdown in the Owner approved schedule of values.

F. Measurement for partial payments will be made by the Architect and will be based on the work that the Architect considers complete, and the assigned values in the Owner approved schedule of values. The Architect shall be the sole judge of the percentage of completion of a Lump Sum item.

G. Individual schedule of value items will not be considered complete until installation and testing are complete and the item is placed in service, or in the Architect's judgment is available to be placed in service.

1.2 PROGRESS PAYMENTS (PARTIAL PAYMENTS)

A. Progress payments for the approved and measured quantities of an item will be subject to the retainage as set forth in the General conditions.

1. Progress payments approved for temporary measures are made based on the temporary measure being maintained by the Contractor until replaced by permanent measures or until no longer required and the Contractor is directed by the Architect to remove the temporary measure.

2. When in the opinion of the Architect, the Contractor is not maintaining the temporary measure, the Contractor shall be so notified by the Architect.

3. Following notice to the Contractor the Architect will increase retainage on Contractor's future application or applications for progress payments in an

amount equal to or exceeding that previously approved for the temporary measures that are not being maintained by the Contractor.

1.4 MEASUREMENT OF QUANTITIES

A. The Architect shall be the sole judge of the completeness of the work as well as the quantity of the item installed in the work.

B. Completed work shall be measured for payment by the Contractor. The measurement shall be performed in the presence of the Architect. The measurement shall be certified by the Contractor and witnessed by the Architect.

C. Method of measurements shall be as delineated on the Owner approved schedule of values.

D. The day the measurement is performed the Contractor shall provide to the Architect one copy of the certified and witnessed measurements.

E. Contractor's application for payment shall be accompanied by certified and witnessed measurement records covering all work for which payment is requested.

1.5 CREDITS

A. No payments will be made for items or quantities of items not installed in the work. The Contractor will be paid only for work and materials that are installed and accepted.

1.6 WORK INCLUDED IN PRICE BID

A. The total price bid by the Contractor shall include all labor (based on NJ Prevailing Wages), superintendence, materials, tools, transportation, plant and equipment, overhead and profit, and all means of construction necessary and reasonably incidental to the complete and fully operational "Harrison Township EMS Building" in accordance with the Contract Documents. No additional or separate payments will be allowed under this contract.

B. All materials and labor obviously a part of the work, and as necessary for proper installation and/or operation of same, although not specifically indicated on the Contract Drawings and/or in the Specifications shall be provided by the Contractor as if called out in detail without additional cost to the Owner and shall be considered to be included in the total price bid by the Contractor.

C. Measurement and payment will be made in accordance with the approved schedule of values for work and materials that are installed and accepted by the Architect.

END OF SECTION

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Section Includes:

1. Submittal procedures.
2. Product Data, Shop Drawings, and Samples.
3. Assurance/Control submittals.

a. Certificates.

b. Manufacturer's installation instructions.

4. Architect's action.

1.2 SUBMITTALS

A. Submit two copies of proposed Schedule of Submittals to Architect within 30 days after receipt of Notice to Proceed. List all items require submittal for review and approval by Architect. Utilize Submittal Schedule, AIA Document G712, or other approved format.

B. Schedule of Submittals: Include the following.

1. Indicate type of submittal; product data, shop drawing, sample, certificate, or other submittal.

2. Identify by Plan and/or Detail number where item is specified, and description of item being submitted.

3. Indicate scheduled date for initial submittal.

C. Coordinate Schedule of Submittals with Construction Schedule. Revise and update Schedule of Submittals when required by changes in the Construction Schedule. Provide Architect with updated schedules within 2 days of date schedule is revised.

1.3 SUBMITTAL PROCEDURES

A. Transmit each submittal with Architect accepted form. Submit the number of opaque reproductions which the Contractor requires, plus two (2) copies which shall be retained by the Architect.

B. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.

C. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

D. For each submittal for review, allow 10 days excluding delivery time to and from the Contractor.

E. Revise and resubmit when required, identify all changes made since previous submission.

1.4 PRODUCT DATA

A. Product data includes printed information such as catalog cuts, manufacturer's published instructions, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, performance curves and other similar items.

B. Submit the number of copies which the Contractor requires, plus two copies which will be retained by Architect.

C. Mark each copy to identify applicable products, models, options, and other data. Submissions which do not specifically indicate the products being used from among multiple products shown will be rejected without review for resubmittal. Supplement manufacturers' standard data to provide information unique to this Project.

1.5 SHOP DRAWINGS

A. Submit in the form of one reproducible transparency and one opaque reproduction.

B. Shop Drawings: Submit for review. After review, produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article above.

C. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

1.6 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

B. Submit samples of finishes in colors selected, textures, and patterns for Architect selection.

C. Include identification on each sample, with full Project information.

D. Submit four (4) samples; one of which will be retained by the Architect, minimum of three (3) sets.

1.7 CERTIFICATES

A. When specified on the Construction Drawings or requested by the Owner, submit certification by manufacturer to Architect, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect.

1.8 MANUFACTURER INSTALLATION INSTRUCTIONS

A. When specified on the Construction Drawings, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Architect in quantities specified for Product Data.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.9 ARCHITECT ACTION

A. For submittals where action and return is required or requested, Architect will review each submittal, mark to indicate action taken, and return promptly; generally within 10 calendar days from date of receipt.

1. Compliance with specified characteristics is the Contractor's responsibility.

2. Submittals for information, closeout documents, record documents and other submittals for similar purposes, no action will be taken.

B. Action Stamp: 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. "No Exceptions Taken": Final Unrestricted Release. Where submittals are marked "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.

2. "Approved as Noted": Final-But-Restricted Release. When submittals are marked "Approved as Noted", that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

3. "Rejected" or "Resubmit": Returned for Resubmittal. When submittal is marked "Rejected" or "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.

4. Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be retained for the Architect's reference purposes and/or discarded. No return to the Contractor will occur.

END OF SECTION

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and supervisory personnel.
2. Submittals.
3. Contractor quality control.
4. Coordination.
5. Project coordination.
6. Preconstruction meeting.
7. Progress meetings.
8. Progress Reports.
9. Pre-installation meetings.
10. Schedule of Values.
11. Application for Payment.
12. Change Procedures.

1.2 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. Project Manager/Administrator: Contractor Representative experienced in administration, supervision, and quality control of building expansion and alteration construction, similar to Work of this Project, including electrical work.

B. Project Field Superintendent: Contractor Representative experienced in general field supervision of building construction, similar to Work of this Project, including electrical work, to supervise, direct, inspect and coordinate Work of Contractor, subcontractors, suppliers and installers, and expedite Work to assure compliance with Construction Schedules. Project Field Superintendent shall be a full-time on-site job assignment.

1.3 SUBMITTALS

A. Submit shop drawings, product data, samples, and other required submittals, in accordance with Section 013000 - Submittal Procedures, for review and compliance with Contract Documents, and for conformance to field dimensions and clearances.

B. Submit Requests for Information and interpretation of Contract Documents in a timely manner and obtain replies from Architect prior to proceeding with the work in question.

C. Submit schedule of values not less than seven (7) days prior to first payment request. Submit “pencil copy” of proposed Payment Application (fax or email is acceptable) not less than 96 hours prior to the scheduled site meeting at which the Payment Application is to be presented.

1.4 CONTRACTOR QUALITY CONTROL

A. Coordinate all program activities through the representatives of the local utility companies, or their assigned agents as required.

B. Coordinate scheduling of inspection and testing required by individual specification Sections and in accordance with Section 014000 - Quality Control.

C. Coordinate schedule for testing to be performed by the Owner under separate contract.

1.5 COORDINATION DRAWINGS

A. Prepare and distribute coordination drawings where close coordination is required for installation of Products and materials fabricated off-site by separate entities, and where limited space availability requires maximum utilization of space for efficient installation of different components. Show interrelationship of components shown on separate shop drawings. Indicate required installation sequences.

1.6 PROJECT COORDINATION

A. Coordinate construction activities and work of all trades under the construction documents and Work of Contract to facilitate orderly installation of each part of Work. Coordinate construction operations included under the construction documents and Contract that are dependent upon each other for proper installation, connection, and operation.

B. Where installation of one part of Work is dependent on installation of other components, either before or after that part of Work, schedule construction activities in sequence required to obtain uninterrupted installation.

C. Obtain drawings, manufacturer's product data, instructions, and other data to provide a complete and proper installation.

1. Check field dimensions prior to installing products. Verify necessary clearances and means of access from equipment storage to final position.

2. Make data and information available to trades involved.

D. Ensure that utility requirements for the installation of service laterals, meter locations, etc. are compatible current regulations.

G. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination.

H. After Owner occupancy of Project, coordinate access to project for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner’s activities.

1.7 PRE-CONSTRUCTION MEETING

A. Owner and Architect will schedule a meeting after Notice of Award.

B. Attendance: Owner, Architect, Contractor, Project Superintendent, and Contractor Quality Control Representative, plus others at the invitation of the Owner.

C. Agenda:

1. Submission of executed bonds and insurance certificates.
2. Distribution of Contract Documents.
3. Submission of schedule of values.
4. Designation of personnel representing the parties in Contract.
5. Procedures and processing of Requests for Information, field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and contract closeout procedures.
6. Scheduling.
7. Review of any special conditions or requirements for interim inspections.
8. Construction facilities and temporary controls.

D. Architect or authorized representative will record minutes and distribute copies to participants, and those affected by decisions made.

1.8 PROGRESS MEETINGS

A. Architect or authorized representative will schedule and administer meetings throughout progress of Work at intervals as agreed upon by the Owner, Architect and Contractor.

B. Architect or authorized representative will make arrangements for meetings, prepare agenda with copies for participants and preside at meetings.

C. Attendance: Job Superintendent, Contractor Quality Control Representative, major Subcontractors and suppliers, and Architect as appropriate to agenda topics for each meeting.

D. Architect or authorized representative will record minutes and distribute copies to participants, and those affected by decisions made.

1.9 PROGRESS REPORTS

A. Construction Progress Schedules

1. Submit initial progress schedule in duplicate within 15 days after “Commencement of Work” for Owner/Architect review.

2. Submit revised schedules with each Application for Payment, identifying changes since previous version. Indicate estimated percentage of completion for each item of Work at each submission.

3. Submit a horizontal bar chart with separate line for each section of Work, identifying first work date of each week.

1.10 SCHEDULE OF VALUES

A. Submit a construction cost breakdown after contract award to the Architect using AIA Form G703, or other approved format. Contractor may be required to utilize established formats as may be required by entities providing funding for the project.

1.11 APPLICATION FOR PAYMENT

A. Submit four (4) original copies of each application in the prescribed format for review, signature & processing at the Project Meeting assigned for that purpose. Submit “pencil copy” of proposed Payment Application (fax or email is acceptable) not less than 96 hours prior to the scheduled site meeting at which the Payment Application is to be presented.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Payment Period: Monthly.

D. Following completion of the following requirements, final payment request may be submitted:

1. Complete work listed as incomplete at time of substantial completion, or otherwise assure Owner of subsequent completion of individual incomplete items.

2. Settle liens and other claims, or assure Owner of subsequent settlement.

3. Submit proof of payment on fees, taxes and similar obligations.

4. Transfer operational, access, security and similar provisions to Owner; and remove temporary facilities, tools and similar items.

5. Completion of requirements specified in “Project Closeout” section.

6. Obtain consent of surety for final payment.

1.12 CHANGE PROCEDURES

A. Submit backup materials and costs associated with any proposed Change Order to the Owner & Architect for review. DO NOT proceed with any work for which a Change Order is necessary without written approval to do so. Failure to obtain written approval may void Contractor’s claim associated with the changed work, or the acceptance thereof.

B. Change Procedures: Change Order Forms - AIA G701 or other approved format.

END OF SECTION

JOB COORDINATION

PART 1 - GENERAL

1.1 COORDINATION WITH OWNER

A. All aspects of the project must be coordinated through the Owner or their designated representative.

B. The Contractor shall present an approximate schedule of construction at the pre-construction conference. The schedule shall indicate the work to be performed, the anticipated dates, and the areas where the work will be performed.

C. The Contractor shall schedule his work and the work of his subcontractors to avoid conflicts, with other Contractors and the Owner's use of the facilities.

D. All requests for variation from the specifications shall be made to the Engineer.

1.2 COORDINATION OF PROJECT (per N.J.A.C. 7:22-3.30)

A. During the construction phase of the projects, job meetings shall be held at frequent intervals to review construction progress and to resolve difficulties which might delay completion of the work. Attendees at these meetings shall include the Owner, the Architect / Engineer, the Inspectors (construction and environmental) and the Contractor.

B. After the award of a contract and prior to the start of work, a pre-construction meeting shall be scheduled by the Owner. The Owner, the Architect / Engineer, the Inspectors and the Contractor must be present at the preconstruction meeting.

1.3 SPECIAL INSPECTIONS AND TESTING

A. The Contractor shall engage an independent qualified inspecting and testing agency acceptable to the owner, to perform special inspections and/or field tests and prepare reports as required per section 1.3 B and referenced special inspections on the structural plans. The established and recognized special inspector, or special inspection agency proposed for each special inspection, must be acceptable to the construction official.

B. The contractor shall pay for any and all special inspections or testing listed below, and shall be included in the total base bid of the project and listed as a separate line item on the schedule of values.

The following special inspections and/or testing required for this project are as follows:

1. Structural Steel Welding: N/A
2. Structural Steel Bolting: N/A
3. Concrete Placement: Required
4. Reinforced Concrete: Required
5. Prestressed Concrete: N/A
6. Soil Load Bearing Capacity: Required

END OF SECTION

QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

2. Quality control procedures.

3. Contractor's testing and inspection reports.

4. Non-compliance check-off list.

5. Completion and inspection of Work.

6. Field samples.

1.2 QUALITY CONTROL PROCEDURES

A. Monitor quality control over Contractor staff, subcontractors, suppliers, manufacturer's, products, services, site conditions, and workmanship.

B. Comply fully with manufacturer's published instructions, including each step in sequence of installation.

C. Should manufacturer's published instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as a minimum quality for Work, except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons who are thoroughly qualified and trained in their respective trade, to produce workmanship of specified quality.

F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

G. Perform tests required by governing authorities having jurisdiction and utilities having jurisdiction.

1.3 CONTRACTOR FIELD INSPECTION AND TESTING

A. Contractor: Test and Inspect Work provided under this Contract to ensure Work is in compliance with Contract requirements.

B. Preparatory Inspection: Performed prior to beginning Work and prior to beginning each segment of Work and includes:

C. Initial Inspection: Performed when representative portion of each segment of Work is completed and includes:

1. Performance of required tests.

2. Quality of workmanship.

3. Review for omissions or dimensional errors.

4. Examination of products used, connections and supports.

5. Approval or rejection of inspected segment of Work.

D. Follow-Up Inspections: Performed daily, and more frequently as necessary, to assure non-complying Work has been corrected.

E. Testing and Inspection: Perform testing and inspection in accordance with Owner’s and/or Municipal requirements.

1.5 CONTRACTOR'S TEST AND INSPECTION REPORTS

A. Prepare and submit, to Architect, a written report of each test or inspection signed by Contractor Quality Control Representative performing inspection within 2 days following day inspection was made.

B. Include the following on written reports of inspection:

1. Cover sheet prominently identifying that inspection "CONFORMS" or "DOES NOT CONFORM" to Contract Documents.

2. Date of inspection and date of report.

3. Project name, location, solicitation number, and Contractor.

4. Names and titles of individuals making inspection, if not Contractor's Project Field Superintendent.

5. Description of Contract requirements for inspection by referencing Specification Section.

6. Description of inspection made, interpretation of inspection results, and notification of significant conditions at time of inspection.

7. Requirements for follow-up inspections.

1.6 NON-COMPLIANCE CHECK-OFF LIST

A. Maintain check-off list of Work that does not comply with Contract Documents, stating specifically what is non-complying, date faulty Work was originally

discovered, and date Work was corrected. No requirement to report deficiencies corrected same day it was discovered. Submit copy of Non-Compliance Check-Off List of non-complying work items to Architect on a weekly basis.

1.7 COMPLETION AND INSPECTION OF WORK

A. Prior to final acceptance by Architect, submit a certification signed by Contractor to Architect stating that all Work has been inspected and all Work, except as specifically noted, is complete and in compliance with Contract Documents.

B. Record Documents: By Contractor Quality Control Representative. Ensure that "As-Builts" required by Section 017001 - Closeout Submittals, are marked to show any deviations which have been made during the course of construction and are kept current on a daily basis. Upon completion of the Work, certify the accuracy of the "As-Builts" and submit to Architect.

1.8 FIELD SAMPLES

A. Construct field samples at the site for review as requested by the Owner or Owner’s represenatitive. Acceptable samples represent a quality level for work. Field samples shall remain in place until subject project work is completed and accepted.

END OF SECTION

MATERIAL / MANUFACTURER SUBSTITUTION POLICY

PART 1 - GENERAL

1.1 MATERIALS AND EQUIPMENT

A. Products:

1. Products: Means new material, machinery components, equipment, fixtures, and systems forming the Work but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.

2. Use interchangeable components of the same manufacture for similar components.

B. Product Options:

1. Products specified by Reference Standards or by Description Only: Any product meeting those standards or description and approved by the Architect.

2. Products specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named by the Architect.

1.2 SUBSTITUTION POLICY

A. Contractor must take note that certain provisions within the drawings for these projects have been designed to utilize a specific product(s) available only through the designatwed manufacturer(s). The products and materials specified in this manner have been identified by the Owner and/or the Architect as the "basis of design" for the project(s), and may not be substituted unless specifically agreed to in writing by the Owner and/or the Architect. This policy will be strictly adhered to in order to maintain uniform appearance, function, and maintenance considerations for the project.

B. If a specified product or material is no longer available, or a substitution is desired for other reasons, for items specified as a specific model number, color, and/or manufacturer, the proposed product will be required to be equivalent in every respect to the item specified. The criteria for approval as an "equivalent" shall include, but not be limited to, performance, dimension, appearance, finish, warranty, and/or the interchangeability of replacement parts with the product originally specified.

C. Proposed substitutions shall be submitted to the Architect in writing, including detailed shop drawings and product data for the proposed product, as applicable.

END OF SECTION

EXECUTION REQUIREMENTS

1.1 SUMMARY

A. Section Includes:

1. Installation.
2. Cleaning.
3. Starting and adjusting.

B. Installation:

1. Refer to installation requirements included on the drawings or indicated in the maunfacturers written specifications.

2. For each Product, inspect substrate and conditions under which the Work will be performed. Do not proceed until unsatisfactory conditions have been corrected.

3. Comply with manufacturer's published installation instructions and recommendations, to extent that instructions and recommendations are more explicit or stringent than requirements in Contract Documents.

4. Inspect Products immediately upon delivery to Project Site ready for installation.

   a. Inspect Products immediately before start of application, installation, or erection.

   b. Reject damaged and defective Products.

5. Verify and check dimensions and measurements before start of installation or erection.

6. Coordinate closing-in of Work with required inspections and tests.

   a. Do not cover Work until inspected and approved by appropriate person or entity.

7. Provide fasteners, attachments, connection devices, and methods as indicated on Drawings or as specified.

   a. Where not indicated or specified provide appropriate methods necessary for securing Work.

   b. Secure Work plumb, true to line and level.

   c. Provide for expansion and building movement.

1.2 CLEANING

A. Cleaning During Construction: Maintain the project site as clean as practicable throughout construction period, including the removal of debris, trash, etc.

B. Final Cleaning:

1. Use cleaning materials and agents recommended by manufacturer or fabricator of surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.

2. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's published instructions.

3. Complete following cleaning operations before requesting Punchlist inspection for Substantial Completion of Project by Architect. Project shall be “move-in” ready for Punchlist inspection.

a. Clean Project Site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste materials, litter and foreign substances. Sweep paved areas broom clean. Remove petro-chemical spills, stains and other foreign deposits. Rake grounds that are neither planted nor paved, to a smooth even-textured surface.

b. Remove tools, construction equipment, machinery and surplus material from Project Site.

c. Remove snow and ice to provide safe access to building.

d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.

g. Vacuum clean carpet and similar soft surfaces, removing debris and excess nap. Shampoo if required.

h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

i. Remove labels that are not permanent labels.

j. Touch-up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces that can not be satisfactorily repaired or restored, or that show evidence of repair or restoration. Do not paint over "UL" and similar labels, including mechanical and electrical name plates.

k. Wipe surfaces of mechanical and electrical equipment, and other similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.

l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

m. Replace air disposable filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills. Clean ducts, blowers, and coils if units were operated without filters during construction.

n. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace any burned out bulbs, and defective and noisy starters in fluorescent and mercury vapor fixtures.

o. Leave Project clean and ready for occupancy.

4. Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from Project Site and dispose of in accordance with requirements of local authorities having jurisdiction.

1.3 STARTING AND ADJUSTING

A. Starting Systems:

1. Coordinate schedule for start-up of various equipment and systems.

2. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

3. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.

4. Verify wiring and support components for equipment are complete and tested.

5. Execute start-up under supervision of applicable Contractors' personnel in accordance with manufacturers' instructions.

6. When specified in individual specification Sections, require manufacturer to provide authorized representative be present at Project Site to inspect,

check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

B. Demonstration and Instruction:

1. Demonstrate operation and maintenance of Products to Owner's personnel 2 weeks before Date of Final Acceptance.

2. Demonstrate Project equipment and provide operation instruction by qualified installer representative who is knowledgeable about Project.

3. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

END OF SECTION

CLOSE-OUT SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Operation and Maintenance manuals.
2. Product warranties.
3. “Record As-Built Drawings”.

1.2 OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1. Prepare data in the form of an instructional manual.

2. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

3. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

4. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

5. Text: Manufacturer's published data, or typewritten data on 20 pound paper.

6. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

7. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, in three parts as follows:

a. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.

b. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification Section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:

1) Significant design criteria.

2) List of equipment.

3) Parts list for each component.

4) Operating instructions.

5) Maintenance instructions for equipment and systems.

6) Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

c. Part 3: Project documents and certificates, including the following:

1) Shop drawings and product data.

2) Certificates.

3) Photocopies of warranties.

1.3 PRODUCT WARRANTIES

A. Submit Warranties required for specific Products or Work as specified in each individual Section.

B. List of Minimum Required Warranties and Guarantees (where applicable):

1. General Contractor - Two (2) year guarantee for all labor and materials for the entire project.

2. HVAC Contractor - Two (2) year guarantee for all labor and materials and manufacturer's standard guarantees for equipment within the scope of this contract.

3. Electrical Contractor - Two (2) year guarantee for all labor and materials, and manufacturer's standard guarantees for all equipment and fixtures within the scope of this contract.

4. Windows and Doors - Manufacturer's standard guarantee, one (1) year minimum.

5. Carpeting - Manufacturer's standard guarantee, one (1) year minimum for material and installation.

6. Major Appliances - e.g., range, range hood, refrigerator, disposal, washer and dryer, thru-wall A.C. units, dishwashers, etc. - Manufacturer's standard guarantees, one (1) year minimum.

C. Form of Submittals:

1. Bind in commercial quality 8-1/2 x 11 inch three D side ring binders with durable plastic covers.

2. Cover: Identify each binder with typed or printed title WARRANTIES with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

3. Table of Contents: Neatly typed, in sequence of Table of Contents of Project Manual, with each item identified with number and title of specification Section in which specified, and name of Product or Work item.

4. Separate each warranty with index tab sheets keyed to Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

D. Time of Submittals:

1. For equipment or component parts of equipment put into service during construction with Architect approval, submit documents within 10 days after acceptance.

2. Make other submittals within 10 days after Date of Final Completion, prior to final Application for Payment.

3. For items of Work for which acceptance is delayed beyond Date of Final Completion, submit within 10 days after acceptance.

1.4 “PROJECT RECORD AS-BUILT DRAWINGS”

A. Project Record Documents required include:

1. Marked-up copies of Contract Drawings.

2. Marked-up copies of Shop Drawings.

3. Marked-up copies of Contract Modifications.

4. Marked-up Product Data submittals.

5. Field records for variable and concealed conditions.

6. Record information on Work that is recorded only schematically.

B. Maintenance of Documents: Store record documents in field office apart from Contract Documents used for construction. Do not permit Project Record Documents to be used for construction purposes. Maintain and protect record documents from damage in a clean, dry, legible condition. Make documents available at all times for inspection.

C. Record Drawings:

1. During construction, maintain a set of black-line white-prints of Contract Drawings and Shop Drawings for Project Record Document purposes.

a. Mark these Drawings to indicate actual installation where installation varies from installation shown originally. Give particular attention to information on concealed elements which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

1) Dimensional changes to Drawings.

2) Revisions to details shown on Drawings.

3) Depths of foundations below first floor.

4) Locations and depths of underground utilities.

5) Revisions to routing of piping and conduits.

6) Revisions to electrical circuitry.

7) Actual equipment locations.

8) Duct size and routing.

9) Locations of concealed internal utilities.

10) Changes made by Contract Modification.

11) Details not on original Contract Drawings.

b. Mark completely and accurately record prints of Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.

c. Mark record sets with red erasable colored pencil; use other colors to distinguish between changes for different categories of Work at same location.

d. Mark important additional information which was either shown schematically or omitted from original Drawings.

e. Note construction change directive numbers, alternate numbers, Contract Modification numbers and similar identification.

f. Contractor bears full Responsibility for Markup and Supervision of the As-Built documentation throughout the course of the project. Where feasible, individual or entity who obtained record data,

whether individual or entity is installer, subcontractor, or similar entity, is required to prepare mark-up on Record Drawings.

1) Accurately record information in an understandable Drawing technique.

2) Record data as soon as possible after it has been obtained. In case of concealed installations, record and check mark-up prior to concealment.

g. At time of Final Acceptance, submit record Drawings to Architect for Owner's records. Organize into sets, bind and label sets for Owner's continued use.

2. Copies and Distribution: After completing preparation of Record Drawings, print 3 black-line prints of each Drawing, whether or not changes and additional information were recorded. Organize copies into manageable sets. Bind each set with durable paper cover sheets, with appropriate identification, including titles, dates and other information on cover sheets.

a. Organize and bind original marked-up set of prints that were maintained during construction in same manner.

b. Organize record transparencies into sets matching print sets. Place each set in durable tube-type Drawing containers with end caps. Mark end cap of each container with suitable identification.

D. Additional Record Submittals:

1. Refer to other specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Immediately prior to Final Acceptance, complete additional records and place in order, properly identified and bound or filed, ready for use and reference.

a. Categories of requirements resulting in miscellaneous records include, but are not limited to the following:

1) Load and performance testing.

2) Inspections and certifications by governing authorities.

3) Fire resistance and flame spread test results.

4) Final inspection and correction procedures.

END OF SECTION

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

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

1. Recycling nonhazardous construction waste.
2. Disposing of nonhazardous construction waste.

1.2 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 SUBMITTALS

A. Recycling and Waste Management Plan: Submit three (3) copies of plan within seven (7) days of date established for the Notice to Proceed.

B. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

C. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

D. Dated photographs of dumpsters labeled for separation.

E. Alternate to items B, C and D above: provide copy of contract with hauler/recycler indicating off-site separation method and submittals B, C and D.

F. During construction provide photographs of various dumpsters with materials separated and one photograph of final hauler facility where materials are recycled.

G. At final construction meeting, submit final breakdown of recycled vs. non-recycled construction materials by weight and dumpster.

1.4 QUALITY ASSURANCE

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

1.5 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification and waste reduction work plan. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement rules and regulations of waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract. Conduct construction waste management and disposal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within three (3) days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be recycled or reused.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.3 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees on-site or at landfill facility.

C. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.4 DISPOSAL OF WASTE

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

1. A minimum of 50% of project waste shall be diverted from landfill.

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

B. Burning: Do not burn waste materials.

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

END OF SECTION

DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Provide all labor, superintendence, materials, tools, transportation, plant and equipment and all means of construction necessary and reasonably incidental to:

Bid Item – New site work includes: clearing, grading, paving, striping and signage, flatwork, curbs, rain water management and retention. New building work includes: new masonry footing, foundation and flatwork, new wood framed building, gutters and downspouts; exterior and interior building sealants as required; interior partitions and doors; exterior doors and windows; floor, wall, and ceiling finishes; complete HVAC system including generation, ductwork, and controls; electrical system including subpanels as indicated, wiring, conduit, and devices as indicated, interior and exterior lighting; electronic control and access systems; fire alarm system; plumbing system including water heater(s) as indicated, domestic and waste lines, plumbing fixtures. All materials shall be provided and installed in the manner described in the plans and specifications or according to industry best practices.

B. The Contractor shall be responsible for obtaining all necessary approvals, permits, registrations and/or certifications and construction permits including, fees for the same. The Contractor must follow and comply with all applicable requirements and standards as required under the approvals, permits, registrations and/or certifications and construction permits obtained for this project.

1.2 PROJECT CONDITIONS

A. Dust Control: To prevent unnecessary spread of dust during performance of demolition work (including crushing of concrete footings and foundations), thoroughly moisten surfaces and debris as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other work on the site. Contractor shall be responsible for securing a supply of water in accordance with applicable regulations. Contractor shall be responsible for providing all water required at his cost.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials needed or required for temporary protection in the form of barricades, fences, enclosures, etc., may be "used" construction materials of sound condition and reasonably clean. However, the condition of same materials shall meet or exceed the requirements of governing agencies or approving bodies as may be involved with the work.

B. Equipment, machinery and apparatus, motorized or otherwise, used to perform

the demolition work may be used as chosen at the Contractor's discretion, but which will perform the work within the limits of the Contract requirements for the duration of the project.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to performance of the actual work, carefully inspect the entire site and structures and locate, and verify with the Architect / Engineer those structures and objects designated to be demolished and removed and those structures and objects to be preserved.

B. Locate existing exposed and buried active utilities and determine the requirement for their protection, or their disposition with respect to the demolition work. Refer to Section 3.7 for additional requirements.

3.2 PERFORMANCE

A. Conduct demolition to minimize interference with adjacent structures or properties and protect existing structures/surfaces to remain.

B. Cease operations immediately if adjacent structures appear to be in danger. Notify Project Manager and authority having jurisdiction; do not resume operations until directed.

C. Conduct operations with minimum interference to public or private accesses. Maintain protected egress and access at all times.

D. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon or limit access to their property.

E. Sprinkle demolition areas with water to minimize dust. Provide hoses and water connections for this purpose.

3.3 DEBRIS REMOVAL

A. Dispose of demolition debris off site in a lawfully approved landfill area. Licensed to receive demolition materials including asbestos and lead.

3.4 ABANDONED EQUIPMENT AND MACHINERY

A. Existing equipment and machinery in or on the structures shall become the property of the Contractor and may not be disposed of on the site but shall be removed and disposed of in a lawful manner off site.

3.5 CONCRETE AND MASONRY REMOVAL

A. Under the base bid, the Contractor must demolish all existing concrete foundations, footings, and floor slabs that are indicated to be demolished whether shown or not. Foundations, footings, and floor slabs comprise all concrete,

masonry, steel, wood, or other materials placed at or below grade that provide support for the existing structure(s) above which are included in the scope of building and/or site demolition. The Contractor is responsible for removing all foundation, footing, and slab materials from the site and providing fill of equivalent volume. All non concrete debris and other materials must be removed from the demolished or crushed concrete foundations and floor slabs.

B. Where concrete building or site elements are demolished as a part of the work, the Contractor may crush demolished concrete material to pieces 3” or smaller and place the crushed concrete materials to bring area of demolition up to level of adjacent grade after demolition and crushing of the existing building concrete foundations and floor slabs if doing so is approved as a base for future work and agreed to by Owner. The crushed concrete fill materials shall be in layers not more than 8" loose depth and shall be compacted by heavy equipment.

C. Any excess crushed concrete material not used on site in a manner approved by Owner shall be removed from the project site by the Contractor and disposed of at the Contractor’s cost.

D. Demolition and crushing of concrete foundation and slab materials must be performed to meet the requirements of DUST CONTROL as specified herein.

E. Under base bid, the contractor shall be required to install clean top soil and grass seed to all disturbed areas.

3.6 BACKFILLING

A. Where soil and site elements are removed, the Contractor must provide and install all required imported fill and earthwork operations to bring area of demolition up to level of adjacent grade after demolition and removal of any existing building footings, foundations, or floor slabs in accordance. Any fill material must be suitable as fill for intended purpose of area being filled. Areas to be seeded or landscaped must receive suitable topsoil material; areas to be built upon must receive suitable compactible fill.

3.7 UTILITIES

A. Contractor must notify the various utility companies when the work is to begin so that gas and electric services may be discontinued if necessary and all wires and equipment may be disconnected in accordance with the rules and regulations of the utility companies. IN NO CASE SHALL CONTRACTOR UNDERTAKE EXCAVATION WITHOUT UNDERGROUND UTILITY PROPERTY BEING MARKED BY THE VARIOUS UTILITY COMPANIES.

B. The Contractor shall plug, cap or otherwise disconnect all existing utilities as indicated on the Contract Drawings or as may enter the existing building in accordance with the individual utility company requirements. In the absence of specific utility company requirements, the Contractor shall use acceptable industry means and methods.

3.8 PERMITS AND LICENSES

A. Contractor shall obtain and pay for all permits, fees and other charges required by the municipality, county or state, and / or utility companies' regulations.

3.9 PROTECTION

A. Exercise care during demolition work to confine demolition operations to the site. The physical means and methods used for protection are at the Contractor's option. However, the Contractor will be completely responsible for replacement and restitution work of whatever nature at no expense to the Owner.

B, Additionally, if public safety is endangered during the progress of the demolition work, provide adequate protective measures to protect public pedestrian and vehicular traffic on streets and walkways.

C Signs, signals and barricades used shall conform to requirements of Federal, State and local laws, rules, regulations, and precautions.

3.10 EXPLOSIVES AND BLASTING

A. Not permitted in performance of demolition work.

END OF SECTION

CAST-IN-PLACE CONCRETE

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 specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Slabs-on-grade.
2. Footings and foundations.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: fly ash and other pozzolans, ground granulated blast-furnace slag; subject to compliance with requirements.

1.4 SUBMITTALS

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

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Steel reinforcement and accessories.
4. Curing compounds.
5. Floor and slab treatments.
6. Bonding agents.
7. Adhesives.

8. Repair materials.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.

2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.

E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete," Sections 1 through 5.

2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.

2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.

Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Plain-Steel Wire: ASTM A 82.

C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut bars true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete

according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

2.5 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

B. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 1-1/2 inches (38 mm) for foundations and walls, 3/4 inch (19 mm) nominal for slabs.

2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.6 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

2. Retarding Admixture: ASTM C 494/C 494M, Type B.

3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.7 VAPOR RETARDERS

A. Plastic Vapor Retarder: ASTM E 1745, Class C, or polyethylene sheet, ASTM D 4397, not less than 15 mils (0.25 mm) thick. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.

1. Products (or equivalent):

a. Fortifiber Corporation; Moistop Plus.
b. Raven Industries Inc.; Dura Skrim.
c. Reef Industries, Inc.; Griffolyn Type.
d. Stego Industries, LLC; Stego Wrap, 10 mils.

B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.8 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Available Products (or equivalent):

a. Burke by Edoco; BurkeFilm.
b. ChemMasters; Spray-Film.
c. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Aquafilm.
d. Dayton Superior Corporation; Sure Film.
e. Euclid Chemical Company (The); Eucobar.
f. L&M Construction Chemicals, Inc.; E-Con.
g. Meadows, W. R., Inc.; Sealtight Evapre.
h. Sika Corporation, Inc.; SikaFilm.
i. Symons Corporation, a Dayton Superior Company; Finishing Aid.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating**,** certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. Available Products (or equivalent):

a. Anti-Hydro International, Inc.; AH Clear Cure WB.
b. Burke by Edoco; Spartan Cote WB II.
c. ChemMasters; Safe-Cure & Seal 20.
d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Cure and Seal WB.
e. Dayton Superior Corporation; Safe Cure and Seal (J-18).
f. Euclid Chemical Company (The); Aqua Cure VOX.

g. L&M Construction Chemicals, Inc.; Dress & Seal WB.
h. Meadows, W. R., Inc.; Vocomp-20.
i. Symons Corporation, a Dayton Superior Company; Cure & Seal 18 Percent E.

2.9 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.10 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.

2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.

4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.

2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.

4. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.

C. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.50.
3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
4. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.

B. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Minimum Cementitious Materials Content: 520 lb/cu. yd.
3. Slump Limit: 5 inches (100 mm), plus or minus 1 inch (25 mm).
4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.13 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

A Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:

1. Class A, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces.

1. Install keyways, reglets, recesses, and the like, for easy removal.

2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS

A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

B. Granular Course: Cover vapor retarder with granular fill, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch (0 mm) or minus 3/4 inch (19 mm).

3.5 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.

3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

D. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.

2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Maintain reinforcement in position on chairs during concrete placement.

3. Screed slab surfaces with a straightedge and strike off to correct elevations.

4. Slope surfaces uniformly to drains where required.

5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

F. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view locations and locations to be covered with a coating or covering material applied directly to concrete.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes or concrete floor toppings.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.

2. Finish surfaces to the following tolerances, according to ASTM E 1155 (ASTM E 1155M):

a. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.

E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.10 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.11 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.

   b. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

   a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.12 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete, but not less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.13 FIELD QUALITY CONTROL

A. Testing and Inspecting: Contractor will engage an independent qualified testing and inspecting agency to perform field tests and inspections and prepare test reports as required.

B. Inspections:

1. Steel reinforcement placement.

2. Verification of use of required design mixture.

3. Concrete placement, including conveying and depositing.

C. Measure floor and slab flatness and levelness according to ASTM E 1155 (ASTM E 1155M) within 48 hours of finishing.

D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.

a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at

least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.

5. Compression Test Specimens: ASTM C 31/C 31M.

    a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

    a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).

9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.

12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION

UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. CMU.
2. Exposed CMU.
3. Face Brick.
4. Precast Sills and Lintels.
5. Mortar.
6. Reinforcing.
7. Flashing.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM C 144 - Specification for Aggregate for Masonry Mortar.
2. ASTM C 150 - Specification for Portland Cement.
3. ASTM C 207 - Specification for Hydrated Lime for Masonry Purposes.
4. ASTM C 270 - Specification for Mortar for Unit Masonry.
5. ASTM C 387 - Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.
6. ASTM C 404 - Specification for Aggregates for Masonry Grout.
7. ASTM C 476 - Specification for Grout for Masonry.
8. ASTM C 1019 - Method of Sampling and Testing Grout.
9. IMIAC - International Masonry Industry All-Weather Council: Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.
10. Building Code Requirements for Masonry Structures ACI 530-95/ASCE 5-95/TMS 402-95.
11. Specification for Masonry Structures ACI 530.1-95/ASCE 5-95/TMS 402-95.

1.3 SUBMITTALS

A. Masonry Unit Product Data: Submit manufacturer's product data for each type of masonry unit, accessory, and other manufactured products, including certification that each type complies with specified requirements.

B. Face Brick and/or Exposed Concrete Masonry Veneers: Submit manufacturer’s sample boards of colors/textures available within specified cost range. Contract shall include selection of multiple colors/textures for use on separate buildings throughout the project.

C. Submit mix designs and color samples for grout and mortar.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver masonry materials to project in undamaged condition.

B. Store and handle masonry units to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion or other causes.

1.5 PROJECT CONDITIONS

A. Protection of Work: During erection, cover top of walls with waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress.

B. Staining: Prevent grout or mortar or soil from staining the face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry.

C. Cold Weather Protection:

1. Do not lay masonry units which are wet or frozen.
2. Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.
3. Remove masonry damaged by freezing conditions.

D. Environmental Requirements:

1. Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

2. Specific Cold Weather Requirements: When the ambient air temperature is below 40 degrees F, heat mixing water to maintain mortar temperature between 40 degrees F and 120 degrees F until placed. When the ambient air temperature is below 32 degrees F, heat the sand and water to maintain this mortar temperature.

PART 2 - PRODUCTS

2.1 MASONRY UNITS

A. General: Comply with referenced standards and other requirements indicated below applicable to each form of concrete masonry unit required.

B. Concrete Block (below grade): Provide units complying with characteristics indicated below for Grade, Type, face size, exposed face and, under each form of block included, for weight classification.

1. Grade N.
2. Size: Manufacturer's standard units with nominal face dimensions of 16 in. long x 8 in. high (15-5/8 in. x 7-5/8 in. actual) x thickness' indicated.
3. Type I, moisture-controlled units.

4. Hollow Loadbearing Block: ASTM C 90, Type 1. (Solid where shown on plans)
5. Weight Classification: Normal weight.
6. Minimum 28-day compressive strength of 1,900 psi.
7. All block below grade shall be filled solid with grout.

D. Concrete Block (Exposed): Provide units complying with characteristics indicated below for Grade, Type, face size, exposed face and, under each form of block included, for weight classification.

1. Grade N.
2. Size: EP Henry "Rock Face" Profile units with nominal face dimensions of 16 in. long x 8 in. high (15-5/8 in. x 7-5/8 in. actual) x thickness' indicated.
3. Type I, moisture-controlled units.
4. Hollow Loadbearing Block: ASTM C 90. (Solid where shown on plans).
5. Weight Classification: Normal weight.
6. Minimum 28-day compressive strength of 1,900 psi.
7. All block below grade shall be filled solid with grout.

E. Pre-Cast Sills & Lintels: Provide pre-cast concrete sills and lintels where indicated on the elevation drawings. Typical locations include horizontal transitions between brick base and siding, at window/door heads, and window sills, water table caps. Brick facades to have brick soldier course headers and sloped rowlock sills. All pre-cast sills MUST be set to slope away from the face of the building for positive drainage.

1. Units shall comply with requirements of ASTM C1364-17.

F. Face Brick:

1. Face Brick: ASTM C216
   a. Grade SW, 2500 psi minimum compressive strength.
   b. Type FBS

2. Size
   a. Modular: 2 ¼" (57.2mm) high, 7 5/8" (193.7mm) long, 3 5/8" (92.1mm) deep.
   b. Utility: 3 5/8" (92.1mm) high, 11 5/8" (295.3mm) long, 3 5/8" (92.1mm) deep.

3. Maximum Initial Rate of Absorption (IRA): 30 g / min / 30 sq. in.

4. Cored and Solid Brick: Face brick may be either cored or solid, except that only solid brick shall be used for corbelling and where cores will be exposed to view. If cored brick is furnished, core holes shall be not less than 3/4 inch from any edge and no more than 25 percent of the gross area of the brick.

5. Special Molded Shapes: Provide special shapes as shown and required.

G. Pre-Cast Sills & Lintels: Provide pre-cast concrete sills and lintels where indicated on the elevation drawings. Typical locations include horizontal transitions between brick base and siding, at window/door heads, and window sills, water table caps. Brick facades to have brick soldier course headers and sloped rowlock sills. All pre-cast sills MUST be set to slope away from the face of the building for positive drainage.

1. Units shall comply with requirements of ASTM C1364-17.

2.2 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150, Type I, except Type III may be used for cold weather construction. Provide natural color or white cement as required to produce required mortar color.

B. Hydrated Lime: ASTM C 207, Type S.

C. Aggregate for Mortar: ASTM C 144, except for joints less than 1/4 in. use aggregate graded with 100 percent passing the No. 16 sieve.

D. Aggregate for Grout: ASTM C 404.

E. Water: Clean and potable.

2.3 JOINT REINFORCEMENT, TIES AND ANCHORING DEVICES

A. Materials: Comply with requirements indicated below for basic materials and with requirements indicated under each form of joint reinforcement, tie and anchor for size and other characteristics:

B. Hot-Dip Galvanized Steel Wire: ASTM A 82 for uncoated wire and with ASTM A 123, Class B-2 (1.5 oz per sq ft of wire surface) for zinc coating applied after prefabrication into units.

C. Joint Reinforcement: Provide welded-wire units prefabricated with deformed continuous rods and plain cross rods into straight lengths of not less than 10 in. with prefabricated corner and tee units, and complying with requirements indicated below:

1. Width: Fabricate joint reinforcement in units with widths of approximately 2-in. less than nominal width of walls and partitions as required to provide mortar coverage of not less than 5/8 in. on joint faces exposed to exterior and 1/2 in. elsewhere.
2. Wire Size for Side Rods: 3/16 in. diameter
3. Wire Size for Cross Rods: 3/16 in. diameter
4. For single-width masonry provide type as follows with single pair of side rods:

    a. Ladder design type Dur-O-Eye or Ladur-Eye by Dur-O-Wal Inc., or equal, spaced not more than 16-in. o.c.

D. Premolded Control Joint Strips: Material as indicated below, designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

1. Polyvinyl chloride complying with ASTM D 2287, General Purpose Grade, Designation PVC-63506.

2.4 MORTAR AND GROUT MIXES

A. General: Do not add admixtures including coloring pigments, air-entraining agents, accelerators, retarders, water repellant agents, anti-freeze compounds or other admixtures, unless otherwise indicated.

B. Mortar:

1. Mortar: Type “M”, in accordance with the Proportion specification of ASTM C 270.

a. Mixing of components on-site is acceptable.
b. Mixing on-site water and packaged dry blended mix for mortar (ASTM C 387), that contains no masonry cement, is acceptable.

2. Pointing Mortar: Duplicate original mortar proportions. Add aluminum tristearate, calcium stearate, or ammonium stearate equipal to 2 percent of Portland cement weight.

C. Mixing – Mortar:

1. Thoroughly mix mortar ingredients in accordance with ASTM C 270, in quantities needed for immediate use.

a. Maintain sand uniformly damp immediately before the mixing process.
b. Provide uniformity of mix and coloration.
c. Do not use anti-freeze compounds.
d. If water is lost by evaporation, retemper only within 2 hours of mixing. Do not retemper mortar more than 2 hours after mixing.
e. Add motor color at exterior building wall only, in accordance with manufacturer’s recommendations. Color to be selected by Architect.

D. Mixes - Grout Fill:

1. Grout fill is for concrete masonry unit bond beams, lintels, and reinforced cells with reinforcing bars and embedded plates.

a. Compressive Strength: 2000 psi minimum at 28 days, as determined in accordance with the provisions of ASTM C 1019.
b. Slump: 8 inches, minimum; 10 inches, maximum, taken in accordance with ASTM C 143.

c. Use coarse grout when grout space is equal to or greater than 4 inches in both directions.
d. Use fine grout when grout space is smaller than 4 inches in either direction.
e. Do not use air-entrainment admixtures.

E. Mixing – Grout:

1. Grout: Batch and mix grout in accordance with ASTM C 94 or ASTM C476 for site batched and mixed grout. Do not use anti-freeze compounds to lower the freezing point of grout.
2. Calcium chloride is not permitted in mortar or grout. Admixtures or other chemicals containing Thyocyanates, Calcium Chloride or more than 0.1 percent chloride ions are not permitted.

2.5 FLEXIBLE FLASHING

A. Materials for flashing all heads, sills, and thru-wall conditions as shown on drawings shall be copper, 3 oz per square foot in weight permanently bonded on both sides by asphalt to heavy, waterproofed, creped Kraft paper.

B. Acceptable Products:

1. COP-R-TEX Duplex as manufactured by York Manufacturing, Inc., Sanford, Maine 04073.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not wet concrete masonry units.

B. Thickness: Build single-width walls to the actual thickness of the masonry units, using units of nominal thickness indicated.

C. Build chases and recesses as shown or required for the work of other trades. Provide not less than 8-in. of masonry between chase or recess and jamb of openings, and between adjacent chases and recesses.

D. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.

E. Cut masonry units using motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible.

1. Use dry cutting saws to cut concrete masonry units.

F. Provide temporary bracing during installation of masonry work. Maintain in place until building structure providing permanent bracing.

G. Verification of existing conditions before starting.

H. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

I. Report in writing to Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

J. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 PLACING REINFORCEMENT

A. General: Clean reinforcement of loose rust, mill scale, earth, ice or other materials which will reduce bond to mortar or grout. Do not use reinforcing bars with kinks or bends not shown on drawings or final shop drawings, or bars with reduced cross-section due to excessive rusting or other causes.

B. Position reinforcement accurately at the spacing shown. Support and secure vertical bars against displacement. Horizontal joint reinforcement shall be placed as the masonry work progresses. Where vertical bars are shown in close proximity, provide a clear distance between bars of not less than the nominal bar diameter or 1 in. (whichever is greater).

C. Splice reinforcement bars where shown; do not splice at other points unless acceptable to the Architect. Provide lapped splices of 40 bar diameters. In splicing vertical bars, lap ends, place in contact and wire tie.

3.3 CONSTRUCTION TOLERANCES

A. Variation from Plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/4 in. in 10 ft.

B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4 in. in any bay or 20 ft maximum, nor 1/2 in. in 40 ft or more. For top surfaces of bearing walls do not exceed 1/8 in. between adjacent floor elements in 10 ft or 1/16 in. within width of a single unit.

C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls and partitions, do not exceed 1/2-in. in any bar or 20 ft maximum, nor 3/4 in. in 40 ft or more.

D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4 in. nor plus 1/2 in.

E. Variation in Mortar Joint Thickness: Do not exceed bed joint thickness indicated by more than plus or minus 1/8 in.. Do not exceed head joint thickness indicated by more than plus or minus 1/8 in.

3.4 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint width and to accurately locate openings, movement-type joints, returns and offsets. Avoid the use of less-than-half size units at corners, jambs and wherever possible at other locations.

B. Lay up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other work.

C. Pattern Bond: Lay all masonry in running bond with vertical joint in each course centered on units in courses above and below, unless specifically indicated otherwise on plans.

3.5 MORTAR BEDDING AND JOINTING

A. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells.

B. Maintain joint widths shown, except for minor variations required to maintain bond alignment. Mortar joints to match existing.

C. Cut joints flush for masonry walls which are to be concealed or to be covered by other materials, unless otherwise indicated.

D. Tool exposed joints slightly concave using a jointer larger than joint thickness, unless otherwise indicated.

E. Install weeps at 32 inches on center horizontally above lintels and at bottom of exterior walls.

3.6 HORIZONTAL JOINT REINFORCEMENT

A. General: Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8 in. on exterior side of walls, 1/2 in. elsewhere. Lap reinforcing a minimum of 6 in.

3.7 ANCHORING MASONRY WORK

A. Anchor masonry work to supporting structure as indicated.

3.8 GROUTING

A. General:

1. Use "Fine Grout" for filling spaces less than 4 in. in both horizontal directions.
2. Use "Coarse Grout" for filling 4 in. spaces or larger in both horizontal directions.

B. Low-Lift Grouting:

1. Provide minimum clear dimension of 2-in. and clear area of 8 sq in. in vertical cores to be grouted.
2. Place vertical reinforcement prior to laying of CMU. Extend above elevation of maximum pour height as required to allow for splicing. Support in position at vertical intervals not exceeding 192 bar diameters nor 10 ft.
3. Lay CMU to maximum pour height. Do not exceed 5 ft height.
4. Pour grout using container with spout or by chute. Rod or vibrate grout during placing. Place grout continuously; do not interrupt pouring of grout for more than one hour. Terminate grout pours 1-1/2 in. below top course of pour.
5. Provide cleanout holes in first course at all vertical cells which are to be filled with grout. After reinforcing of masonry is securely tied in place, plug cleanout holes with masonry units. Brace against wet grout pressure.
6. Place horizontal wall reinforcement as the masonry units are laid.
7. Preparation of Grout Spaces: Prior to grouting, inspect and clean grout spaces. Remove dust, dirt, mortar droppings, loose pieces of masonry and other foreign materials from grout spaces. Clean reinforcing and adjust to proper position. Clean top surface of structural members supporting masonry to ensure bond. After final cleaning and inspection, close cleanout holes and brace closures to resist grout pressures.
8. Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist displacement of masonry units and breaking of mortar bond. Install shores and bracing, if required, before starting grouting operations.
9. Place grout by pumping into grout spaces unless alternate methods are acceptable to the Architect.
10. Limit grout pours to sections which can be completed in one working day with not more than one hour interruption of pouring operation. Place grout in lifts which do not exceed 5 ft. Allow not less than 30 minutes, or more than one hour between lifts of a given pour. Rod or vibrate each grout lift during pouring operation.

    a. Place grout in lintels or beams over openings in one continuous pore.

11. When more than one pour is required to complete a given section of masonry, extend reinforcing beyond masonry as required for splicing. Pour grout to within 1-1/2 in. of top course of first pour. After grouted masonry is cured, lay masonry units and place reinforcing for second pour section before grouting. Repeat sequence if more pours are required.
12. Inspection: All reinforced masonry walls shall be "Engineered Masonry" and shall be inspected in accordance with ACI-530-88. Test masonry prisms in accordance with ASTM E 447, and provide quality control as required by ASTM C780. Prism strengths shall be as noted on the drawings.

3.9 PLACING FLEXIBLE FLASHING

A. Heads and Sills: Flashing for heads and sills shall be cut flush with the exterior face of the wall after being left exposed for inspection purposes only. Flashing shall be carried through the wall and turned up at the inside not less than 2". Head flashing shall be carried 6" beyond both ends of the steel lintel. Both head and sill flashing shall be turned up at the sides to form a pan. All corners shall be folded, not cut. Install weepholes.

B. Spandrels: Spandrel flashing shall start from the outside toe of the shelf angle, go up the face of the beam and then through the wall, turning up on the inside not less than 2". Install weepholes.

3.10 CLEANING

A. Final Cleaning: After mortar is thoroughly set and cured, clean masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave 1/2 panel uncleaned for comparison purposes. Obtain Owner's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.

B. Protection: Provide final protection and maintain conditions in a manner acceptable to Installer, which ensures unit masonry work being without damage and deterioration at time of substantial completion.

3.11 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. The Construction Contractor will employ a testing laboratory to perform tests and submit test reports.

B. Testing - Masonry Grout: Conduct strength tests in accordance with ASTM C 1019.

C. Testing - Masonry Mortar: Conduct strength tests in accordance with the following:

1. Spread mortar on the masonry units ½ inch to 5/8 inch thick, and allow to stand for one minute.
2. Remove mortar and place in a 2-inch by 4-inch cylinder in two layers, compressing the mortar into the cylinder using a flat-end stick or fingers. Lightly tap mold on opposite sides, level off and immediately cover molds and keep them damp until taken to the laboratory.
3. After 48 hours' set, have the laboratory remove molds and place them in the fog room until tested in damp condition.

END OF SECTION

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Framing with engineered wood products.
3. Wood blocking, and nailers.

B. Related Requirements:

1. Section 061001 "Sheathing."

1.3 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

C. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. SPIB: The Southern Pine Inspection Bureau.
4. WCLIB: West Coast Lumber Inspection Bureau.
5. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with

requirements. Indicate type of preservative used and net amount of preservative retained.

1.5 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

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.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed 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: Provide 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: Provide engineered wood products with allowable design stresses, as published by manufacturer, that 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: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the 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.

D. Application: Treat items indicated on Drawings, and the following as applicable:

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, 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 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. Mixed southern pine; SPIB.
b. Hem-fir; WCLIB, or WWPA.
c. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
d. Eastern softwoods; NeLMA.

B. Load-Bearing Partitions: No. 2 grade.

1. Application: Exterior walls and interior load-bearing partitions.
2. Species:

a. Southern pine; SPIB.
b. Douglas fir-larch; WCLIB or WWPA.
c. Douglas fir-south; WWPA.
d. Hem-fir; WCLIB or WWPA.

C. Joists, Rafters, and Other Framing Not Listed Above: No. 2 grade.

1. Species:

a. Southern pine; SPIB.
b. Douglas fir-larch; WCLIB or WWPA.
c. Douglas fir-south; WWPA.
d. Hem-fir; WCLIB or WWPA.

2.4 ENGINEERED WOOD PRODUCTS

A. Source Limitations: Obtain each type of engineered wood product from single source from a single manufacturer.

B. 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Boise Cascade Corporation.
    b. Georgia-Pacific.
    c. Louisiana-Pacific Corporation.
    d. Weyerhaeuser Company.

2. Extreme Fiber Stress in Bending, Edgewise: 2600 psi (17.9 MPa) for 12-inch nominal- (286-mm actual-) depth members.
3. Modulus of Elasticity, Edgewise: 1,800,000 psi (12 400 MPa).

C. Parallel-Strand Lumber: Structural composite lumber made from wood strand elements 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Louisiana-Pacific Corporation.
    b. Weyerhaeuser Company.

2. Extreme Fiber Stress in Bending, Edgewise: 2900 psi (20 MPa) for 12-inch nominal- (286-mm actual-) depth members.
3. Modulus of Elasticity, Edgewise: 2,200,000 psi (15 100 MPa).

D. Rim Boards: Product designed to be used as a load-bearing member and to brace wood joists at bearing ends, complying with research/evaluation report for joists.

1. Manufacturer: Provide products by same manufacturer as laminated veneer lumber and parallel strand lumber.
2. Material: product made from any combination solid lumber, wood strands, and veneers.
3. Thickness: 1-1/2 inches (38 mm).

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.

B. For items of dimension lumber size, provide Standard, Stud, or No. 3 grade lumber of any species.

1. Mixed southern pine; SPIB.
2. Hem-fir; WCLIB or WWPA.
3. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
4. Western woods; WCLIB or WWPA.
5. Eastern softwoods; NeLMA.

C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.6 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).

F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

2.7 METAL FRAMING ANCHORS

A. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings; product name or designation> or comparable product by one of the following:

1. Simpson Strong-Tie Co., Inc.
2. USP Structural Connectors.

C. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that 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.

D. 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.

E. 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-preservative-treated lumber and where indicated.

F. Face-Mount Joist Hangers: U-shaped joist hangers, full depth of joist, formed from metal strap with tabs to be fastened to supporting member.

1. Strap Width: 1-1/2 inches (38 mm).
2. Thickness: 0.050 inch (1.3 mm).

G. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch (25 mm) above base and with 2-inch- (50-mm-) minimum side cover, socket 0.062 inch (1.6 mm) thick, and standoff and adjustment plates 0.108 inch (2.8 mm) thick.

H. Rafter Tie-Downs: Bent strap tie for fastening rafters or roof trusses to wall studs below, 1-1/2 inches (38 mm) wide by 0.050 inch (1.3 mm) thick.

I. Floor-to-Floor Ties: Flat straps, with holes for fasteners, for tying upper floor wall studs to band joists and lower floor studs, 1-1/4 inches (32 mm) wide by 0.050 inch (1.3 mm) thick by 36 inches (914 mm) long.

J. Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods and designed with first of two bolts placed seven bolt diameters from reinforced base.

1. Bolt Diameter: [5/8 inch (15.8 mm)] [3/4 inch (19 mm)].
2. Width: [2-1/2 inches (64 mm)] [3-3/16 inches (81 mm)].
3. Body Thickness: [0.108 inch (2.8 mm)] [0.138 inch (3.5 mm)].
4. Base Reinforcement Thickness: [0.108 inch (2.8 mm)] [0.239 inch (6.1 mm)].

2.8 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 or rubberized-asphalt 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. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

D. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

E. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.

F. Do not splice structural members between supports unless otherwise indicated.

G. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

H. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches (2438 mm) o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches (2438 mm) o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- (38-mm actual-) thickness.
3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. (9.3 sq. m) and to solidly fill space below partitions.
4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet (6 m) o.c.

I. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

J. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

K. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. 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.

L. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive

finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.

1. For exterior walls, provide 2-by-6-inch nominal- (38-by-140-mm actual-) size wood studs spaced 16 inches (406 mm) o.c. unless otherwise indicated.
2. For interior partitions and walls, provide 2-by-4-inch nominal- (38-by-89-mm actual-) size wood studs spaced 16 inches (406 mm) o.c. unless otherwise indicated.
3. Provide continuous horizontal blocking at midheight of partitions more than 96 inches (2438 mm) high, using members of 2-inch nominal (38-mm actual) thickness and of same width as wall or partitions.

B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal (89-mm actual) depth for openings 48 inches (1200 mm) and less in width, 6-inch nominal (140-mm actual) depth for openings 48 to 72 inches (1200 to 1800 mm) in width, 8-inch nominal (184-mm actual) depth for openings 72 to 120 inches (1800 to 3000 mm) in width, and not less than 10-inch nominal (235-mm actual) depth for openings 10 to 12 feet (3 to 3.6 m) in width.

2. For load-bearing walls, provide double-jamb studs for openings 60 inches (1500 mm) and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated.

3.4 FLOOR JOIST FRAMING INSTALLATION

A. General: Install floor joists with crown edge up and support ends of each member with not less than 1-1/2 inches (38 mm) of bearing on wood or metal, or 3 inches (76 mm) on masonry. Attach floor joists as follows:

1. Where supported on wood members, by toe nailing or by using metal framing anchors.
2. Where framed into wood supporting members, by using wood ledgers as indicated or, if not indicated, by using metal joist hangers.

B. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 48 inches (1200 mm).

C. Do not notch in middle third of joists; limit notches to one-sixth depth of joist, one-third at ends. Do not bore holes larger than 1/3 depth of joist; do not locate closer than 2 inches (50 mm) from top or bottom.

D. Provide solid blocking of 2-inch nominal (38-mm actual) thickness by depth of joist at ends of joists unless nailed to header or band.

E. Lap members framing from opposite sides of beams, girders, or partitions not less than 4 inches (102 mm) or securely tie opposing members together. Provide solid blocking of 2-inch nominal (38-mm actual) thickness by depth of joist over supports.

F. Provide solid blocking between joists under jamb studs for openings.

G. Under non-load-bearing partitions, provide double joists separated by solid blocking equal to depth of studs above.

1. Provide triple joists separated as above, under partitions receiving ceramic tile and similar heavy finishes or fixtures.

H. Provide bridging of type indicated below, at intervals of 96 inches (2438 mm) o.c., between joists.

1. Diagonal wood bridging formed from bevel-cut, 1-by-3-inch nominal- (19-by-64-mm actual-) size lumber, double-crossed and nailed at both ends to joists.
2. Steel bridging installed to comply with bridging manufacturer's written instructions.

3.5 CEILING JOIST AND RAFTER FRAMING INSTALLATION

A. Ceiling Joists: Install ceiling joists with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.

1. Where ceiling joists are at right angles to rafters, provide additional short joists parallel to rafters from wall plate to first joist; nail to ends of rafters and to top plate and nail to first joist or anchor with framing anchors or metal straps. Provide 1-by-8-inch nominal- (19-by-184-mm actual-) size or 2-by-4-inch nominal- (38-by-89-mm actual-) size stringers spaced 48 inches (1200 mm) o.c. crosswise over main ceiling joists.

B. Rafters: Notch to fit exterior wall plates and use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

1. At valleys, provide double-valley rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches (50 mm) deeper. Bevel ends of jack rafters for full bearing against valley rafters.
2. At hips, provide hip rafter of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches (50 mm) deeper. Bevel ends of jack rafters for full bearing against hip rafter.

C. Provide collar beams (ties) as indicated or, if not indicated, provide 1-by-6-inch nominal- (19-by-140-mm actual-) size boards between every third pair of rafters, but not more than 48 inches (1219 mm) o.c. Locate below ridge member, at third point of rafter span. Cut ends to fit roof slope and nail to rafters.

D. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions if any.

3.6 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.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet 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

SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

Note: Energy Star program requires house air leakage test - .35 air changes/hour Green Point program – see EEBA details on house wrap, building paper or layered water resistant sheathing use Low VOC sealants.

A. This Section includes the following:
   1. Wall sheathing.
   2. Roof sheathing.
   3. Subflooring.
   4. Underlayment.
   5. Building paper.
   6. Building wrap.
   7. Sheathing joint-and-penetration treatment.
   8. Flexible flashing at openings in sheathing.

1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements.

B. Research/Evaluation Reports: For the following:

   1. Preservative-treated plywood.
   2. Building wrap.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Stack plywood and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS, GENERAL

A. Plywood: DOC PS 2, unless otherwise indicated.

B. Oriented Strand Board: DOC PS 2.

2.2 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA C9.

B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing].

2.3 WALL SHEATHING

A. Plywood Wall Sheathing: Exterior, Structural I sheathing.

1. Span Rating: Not less than 32/16.

2. Nominal Thickness: Not less than 1/2 inch.

B. Oriented-Strand-Board Wall Sheathing: Exposure 1, Structural I sheathing.

1. Span Rating: Not less than 32/16.

2. Nominal Thickness: Not less than 1/2 inch.

2.4 ROOF SHEATHING

A. Plywood Roof Sheathing: Exterior, Structural I sheathing.

1. Span Rating: Not less than 40/20.

2. Nominal Thickness: Not less than 5/8 inch.

2.5 SUBFLOORING AND UNDERLAYMENT

A. Plywood Subflooring: Exposure 1, Structural I single-floor panels or sheathing.

B. Plywood Underlayment for Resilient Flooring: DOC PS 1, Exposure 1 Underlayment with fully sanded face.

C. Plywood Underlayment for Ceramic Tile: DOC PS 1, Exterior, C-C Plugged, not less than 5/8-inch nominal thickness, for ceramic tile set in epoxy adhesive.

D. Plywood Underlayment for Carpet: DOC PS 1, Interior, Underlayment.

E. Hardboard Underlayment: AHA A135.4, Class 4 (Service), Surface S1S; with back side sanded.

2.6 FASTENERS

A. General: Provide fasteners of size and type indicated.

1. For wall and roof sheathing panels, provide fasteners with corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

1. For wall and roof sheathing panels, provide screws with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

2.7 WEATHER-RESISTANT SHEATHING PAPER

A. Building Paper: ASTM D 226, Type 1 (No. 15 asphalt-saturated organic felt), unperforated.

B. Building Wrap: ASTM E 1677, Type I air retarder; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Chemical Company (The); Styrofoam Weathermate Plus Brand Housewrap.
b. DuPont (E. I. du Pont de Nemours and Company); Tyvek CommercialWrap
c. Ludlow Coated Products; Barricade Building Wrap.

C. Building-Wrap Tape: Tape recommended by building-wrap manufacturer.

2.8 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Paper-Surfaced or Glass-Mat Gypsum Sheathing Board: Elastomeric silicone joint sealant recommended by sheathing manufacturer.

B. Sheathing Tape for Glass-Mat Gypsum Sheathing Board: Self-adhering glass-fiber tape, of type recommended by sheathing and tape manufacturers.

2.9 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Framing: Formulation complying with ASTM D 3498 that is approved for use indicated by manufacturers of both adhesives and panels.

B. Flexible Flashing: Self-adhesive, rubberized-asphalt compound, bonded to a high-density, polyethylene film to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. NJIBC 2018

D. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that exclude exterior moisture.

E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

F. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial."

1. Comply with "Code Plus" installation provisions in guide referenced in paragraph above.

B. Fastening Methods: Fasten panels as indicated below:

1. Subflooring:

a. Glue and nail to wood framing.

2. Wall and Roof Sheathing:

a. Nail or staple to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels.

3. Underlayment:

a. Nail or staple to subflooring.

3.3 WEATHER-RESISTANT SHEATHING-PAPER INSTALLATION

A. General: Cover sheathing with weather-resistant sheathing paper as follows:

1. Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.
2. Apply barrier to cover vertical flashing with a minimum 4-inch overlap, unless otherwise indicated.

B. Building Paper: Apply horizontally with a 2-inch overlap and a 6-inch end lap; fasten to sheathing with galvanized staples or roofing nails.

C. Building Wrap: Comply with manufacturer's written instructions.

1. Seal seams, edges, fasteners, and penetrations with tape.
2. Extend into jambs of openings and seal corners with tape.

3.4 SHEATHING JOINT-AND-PENETRATION TREATMENT

A. Seal sheathing joints according to sheathing manufacturer's written instructions.

1. Apply elastomeric sealant to joints and fasteners and trowel flat. Seal other penetrations and openings.
2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing board joints, and apply and trowel silicone emulsion sealant to embed tape in sealant. Apply sealant to exposed fasteners. Seal other penetrations and openings.
3. Apply sheathing tape to joints between foam-plastic sheathing panels and at items penetrating sheathing. Apply at upstanding flashing to overlap both flashing and sheathing.

3.5 FLEXIBLE FLASHING INSTALLATION

A. Apply flexible flashing where indicated to comply with manufacturers written instructions.

1. Lap seams and junctures with other materials at least 4 inches, except that at flashing flanges of other construction, laps need not exceed flange width.
2. Lap flashing over weather-resistant building paper at bottom and sides of openings.
3. Lap weather-resistant building paper over flashing at heads of openings.
4. After flashing has been applied, roll surfaces with a hard rubber or metal roller.

3.6 PROTECTION

A. Paper-Surfaced Gypsum Sheathing: Protect sheathing by covering exposed exterior surface of sheathing with weather-resistant sheathing paper securely fastened to framing. Apply covering immediately after sheathing is installed.

END OF SECTION

ROUGH CARPENTRY - BLOCKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Wood blocking, and nailers.

1.3 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

C. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. SPIB: The Southern Pine Inspection Bureau.
4. WCLIB: West Coast Lumber Inspection Bureau.
5. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

1.5 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

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.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed 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: Provide 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: Provide engineered wood products with allowable design stresses, as published by manufacturer, that 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: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the 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.

D. Application: Treat items indicated on Drawings, and the following as applicable:

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, 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 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.

B. For items of dimension lumber size, provide Standard, Stud, or No. 3 grade lumber of any species.

1. Mixed southern pine; SPIB.
2. Hem-fir; WCLIB or WWPA.
3. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
4. Western woods; WCLIB or WWPA.
5. Eastern softwoods; NeLMA.

C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

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. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).

F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

2.5 METAL FRAMING ANCHORS

A. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings; product name or designation> or comparable product by one of the following:

1. Simpson Strong-Tie Co., Inc.
2. USP Structural Connectors.

C. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, which 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.

D. 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.

E. 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-preservative-treated lumber and where indicated.

F. Top Flange Hangers: U-shaped joist hangers, full depth of joist, formed from metal strap with tabs bent to extend over and be fastened to supporting member.

1. Strap Width: 1-1/2 inches (38 mm).
2. Thickness: 0.050 inch (1.3 mm).

G. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch (25 mm) above base and with 2-inch- (50-mm-) minimum side cover, socket 0.062 inch (1.6 mm) thick, and standoff and adjustment plates 0.108 inch (2.8 mm) thick.

H. Rafter Tie-Downs: Bent strap tie for fastening rafters or roof trusses to wall studs below, 1-1/2 inches (38 mm) wide by 0.050 inch (1.3 mm) thick.

I. Floor-to-Floor Ties: Flat straps, with holes for fasteners, for tying upper floor wall studs to band joists and lower floor studs, 1-1/4 inches (32 mm) wide by 0.050 inch (1.3 mm) thick by 36 inches (914 mm) long.

J. Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods and designed with first of two bolts placed seven bolt diameters from reinforced base.

1. Bolt Diameter: [5/8 inch (15.8 mm)] [3/4 inch (19 mm)].
2. Width: [2-1/2 inches (64 mm)] [3-3/16 inches (81 mm)].
3. Body Thickness: [0.108 inch (2.8 mm)] [0.138 inch (3.5 mm)].
4. Base Reinforcement Thickness: [0.108 inch (2.8 mm)] [0.239 inch (6.1 mm)].

2.6 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] [or] [rubberized-asphalt] 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. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

D. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

E. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.

F. Do not splice structural members between supports unless otherwise indicated.

G. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

H. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches (2438 mm) o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches (2438 mm) o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- (38-mm actual-) thickness.
3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. (9.3 sq. m) and to solidly fill space below partitions.

4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet (6 m) o.c.

I. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

J. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

K. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. 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.

L. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.

1. For exterior walls, provide 2-by-6-inch nominal- (38-by-140-mm actual-) size wood studs spaced 16 inches (406 mm) o.c. unless otherwise indicated.
2. For interior partitions and walls, provide 2-by-4-inch nominal- (38-by-89-mm actual-) size wood studs spaced 16 inches (406 mm) o.c. unless otherwise indicated.
3. Provide continuous horizontal blocking at midheight of partitions more than 96 inches (2438 mm) high, using members of 2-inch nominal (38-mm actual) thickness and of same width as wall or partitions.

B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal (89-mm actual) depth for openings 48 inches (1200 mm) and less in width, 6-inch nominal (140-mm actual) depth for openings 48 to 72 inches (1200 to 1800 mm) in width, 8-inch nominal (184-mm actual) depth for openings 72 to 120 inches (1800 to 3000 mm) in width, and not less than 10-inch nominal (235-mm actual) depth for openings 10 to 12 feet (3 to 3.6 m) in width.
2. For load-bearing walls, provide double-jamb studs for openings 60 inches (1500 mm) and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated.

3.4 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.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet 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

MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Framing with dimension lumber.
2. Wood blocking, cants, and nailers.
3. Interior wood trim.
4. Plywood backing panels.

1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative and fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.

1.3 QUALITY ASSURANCE

A. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria":

1. Dimension lumber framing.
2. Miscellaneous lumber.
3. Interior wood trim.

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.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

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 items indicated on Drawings, and the following:

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, 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 floor plates that are installed over concrete slabs-on-grade.

2.3 DIMENSION LUMBER FRAMING (where specified)

A. Maximum Moisture Content: 19 percent.

B. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade of any species.

C. Other Framing: No. 2 grade and any of the following species:

1. Hem-fir (north); NLGA.

2. Douglas fir-larch (north); NLGA.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Cants.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and the following species and grades:

1. Northern species, No. 2 Common grade; NLGA.

2.5 INTERIOR WOOD TRIM

A. General: Provide kiln-dried finished (surfaced) material.

B. Lumber Trim for Opaque (Painted) Finish: Either finger-jointed or solid lumber, of one of the following species and grades:

1. Grade D Select eastern white pine; NeLMA or NLGA.

2. Grade D Select (Quality) Idaho white, lodgepole, ponderosa, or sugar pine; NLGA or WWPA.

3. Grade A Finish aspen, basswood, cottonwood, gum, magnolia, red alder, soft maple, sycamore, tupelo, or yellow poplar; NHLA.

C. Moldings: Made to patterns included in WMMPA WM 7 and graded according to WMMPA WM 4.

1. Moldings for Opaque (Painted) Finish: P-grade eastern white.

2.6 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, in thickness indicated or, if not indicated, not less than 1/2-inch (13-mm) nominal thickness.

2.7 FASTENERS

A. General: 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.

B. Power-Driven Fasteners: NES NER-272.

C. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

D. Securely attach 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.

E. Wood Trim Installation: Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints.

1. Match color and grain pattern across joints.
2. Install trim after gypsum board joint-finishing operations are completed.
3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.6-mm) maximum offset for reveal installation.

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

SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Wood roof trusses.
2. Wood truss bracing.
3. Metal truss accessories.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design load deflection and vibration criteria indicated. Comply with requirements in TPI 1.

1.3 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 type, size, material, finish, design values, orientation, and location of metal connector plates.
5. Show splice details and bearing details.
6. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer, register in the State of New Jersey, responsible for their preparation.

C. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Metal-plate connectors.
2. Metal truss accessories.

1.4 QUALITY ASSURANCE

A. 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.

B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that complies with quality-control procedures in TPI 1 and that involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.

C. Comply with applicable requirements and recommendations of the following publications:

1. TPI 1, "National Design Standard for Metal Plate Connected Wood Truss Construction."
2. TPI DSB, "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses."
3. TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."

D. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

PART 2 - PRODUCTS

2.1 DIMENSION LUMBER

A. Lumber: DOC PS 20. 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.

1. Provide dry lumber with 19 percent maximum moisture content at time of dressing.

B. Grade and Species: For truss chord and web members, provide dimension lumber of any species, graded visually or mechanically, and capable of supporting required loads without exceeding allowable design values according to AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

C. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Division 06 Section Rough Carpentry**.**

2.2 METAL PRODUCTS

A. Connector Plates: Fabricate connector plates to comply with TPI 1 from hot-dip galvanized steel sheet complying with 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 coating designation; and not less than 0.036 inch thick.

1. 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:

    a. Alpine Engineered Products, Inc.
    b. Cherokee Metal Products, Inc.; Masengill Machinery Company.
    c. CompuTrus, Inc.
    d. Eagle Metal Products.
    e. Jager Building Systems, Inc.
    f. MiTek Industries, Inc.; a subsidiary of Berkshire Hathaway Inc.
    g. Robbins Engineering, Inc.
    h. TEE-LOK Corporation; a subsidiary of Berkshire Hathaway Inc.
    i. Truswal Systems Corporation.

B. Fasteners: 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.

1. Nails, Brads, and Staples: ASTM F 1667.
2. Power-Driven Fasteners: NES NER-272.
3. Wood Screws: ASME B18.6.1.
4. Lag Bolts: ASME B18.2.1.
5. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

C. Metal Truss Accessories: Provide truss accessories made from hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

1. 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:

    a. Cleveland Steel Specialty Co.
    b. Harlen Metal Products, Inc.
    c. KC Metals Products, Inc.
    d. Simpson Strong-Tie Co., Inc.
    e. Southeastern Metals Manufacturing Co., Inc.
    f. USP Structural Connectors.

2. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that 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.

2.3 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 truss accessories according to manufacturer's fastening schedules and written instructions.

F. Securely connect each truss ply required for forming built-up girder trusses.

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 Division 06 Section Rough Carpentry**.**

H. Install wood trusses within installation tolerances in TPI 1.

I. Do not cut or remove truss members.

J. Replace wood trusses that are damaged or do not meet requirements.

END OF SECTION

INTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Interior trim, including non fire-rated interior door and sidelight frames.
2. Interior plywood paneling.
3. Shelving and brackets.

B. Related Requirements:

1. Section 061010 "Rough Carpentry" for furring, blocking, and other carpentry work not exposed to view.
2. Section 061053 "Miscellaneous Carpentry" for furring, blocking, and other carpentry work not exposed to view.
3. Section 099123 "Painting" for priming and backpriming of interior finish carpentry.

1.3 DEFINITIONS

A. MDF: Medium-density fiberboard.

B. MDO: Plywood with a medium-density overlay on the face.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

1. Include data for wood-preservative treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained. Include chemical-treatment manufacturer's written instructions for finishing treated material.

2. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced before shipment to Project site to levels specified.

B. Sustainable Design Submittals:

1. Product Certificates: For materials manufactured within 100 miles (160 km) of Project, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each raw material.
2. Chain-of-Custody Certificates: For certified wood products. Include statement of costs.
3. Chain-of-Custody Qualification Data: For manufacturer and vendor.
4. Laboratory Test Reports: For composite wood products, indicating compliance with requirements for low-emitting materials.
5. Product Data: For installation adhesives, indicating VOC content.
6. Laboratory Test Reports: For installation adhesives, indicating compliance with requirements for low-emitting materials.

C. Samples for Initial Selection: For each type of product involving selection of colors, profiles, or textures.

D. Samples for Verification:

1. For each species and cut of lumber and panel products with nonfactory-applied finish, with half of exposed surface finished, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels.
2. For foam plastic moldings, with half of exposed surface finished; 50 sq. in. (300 sq. cm).
3. For each finish system and color of lumber and panel products with factory-applied finish, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (200 by 250 mm) for panels.

1.5 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For fire-retardant-treated wood, from ICC-ES.

B. Sample Warranty: For manufacturer's warranty.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.

B. Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body.

1.7 DELIVERY, STORAGE, AND HANDLING

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

B. Deliver interior finish carpentry materials only when environmental conditions comply with requirements specified for installation areas. If interior finish carpentry materials must be stored in other than installation areas, store only where environmental conditions comply with requirements specified for installation areas.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install interior finish carpentry materials until building is enclosed and weatherproof, wet work in space is completed and nominally dry, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.

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

1.9 WARRANTY

A. Manufacturer's Warranty for Columns: Manufacturer agrees to repair or replace columns that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Columns: **Five** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Regional Materials: The following wood products shall be manufactured within 100 miles (160 km) of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles (160 km) of Project site.

1. Interior trim.
2. Fire-rated interior door and sidelight frames.

B. Certified Wood: The following wood products shall be certified as "FSC Pure" according to FSC STD-01-001 and FSC STD-40-004.

1. Interior trim.

C. Composite Wood Products: Products shall be made using ultra-low-emitting formaldehyde resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde.

D. 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 American Lumber Standard Committee's Board of Review. Grade lumber by an agency certified by the American Lumber Standard Committee's 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, mark grade stamp on end or back of each piece.

E. Softwood Plywood: DOC PS 1.

F. Hardboard: ANSI A135.4.

G. MDF: ANSI A208.2, Grade 130.

H. Particleboard: ANSI A208.1, Grade M-2.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC1.

1. Kiln dry lumber and plywood after treatment to a maximum moisture content of 19 and 18 percent, respectively.
2. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
3. For exposed items indicated to receive transparent finish, do not use chemical formulations that contain colorants or that bleed through or otherwise adversely affect finishes.
4. Do not use material that is warped or does not comply with requirements for untreated material.
5. Mark lumber with treatment-quality mark of an inspection agency approved by the American Lumber Standard Committee's Board of Review.

a. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

6. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

a. For exposed plywood indicated to receive a stained or natural finish, mark back of each piece.

7. Application: All interior lumber and plywood.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: For applications indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and comply with testing requirements; testing will be conducted 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, with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.

1. Kiln dry lumber and plywood after treatment to a maximum moisture content of 19 and 15 percent, respectively.

C. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not contain colorants, and provide materials that do not have marks from spacer sticks on exposed face.

D. Do not use material that does not comply with requirements for untreated material or is warped or discolored.

E. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.
2. For exposed plywood indicated to receive a stained or natural finish, mark back of each piece.

F. Application: All interior lumber and plywood.

2.4 INTERIOR TRIM

A. Softwood Lumber Trim for Transparent Finish (Stain or Clear Finish):

1. Species and Grade: Eastern white pine, Finish or 1 Common; NeLMA or NLGA.
2. Species and Grade: Eastern white, Idaho white, lodgepole, ponderosa, radiata, or sugar pine, Finish or 1 Common (Colonial)]; NeLMA, NLGA, or WWPA.
3. Species and Grade: White woods, 1 Common; WWPA.
4. Species and Grade: Douglas fir-larch or Douglas fir south, Superior or C & Btr finish; NLGA, WCLIB, or WWPA.

5. Species and Grade: Southern pine, B & B finish; SPIB.
6. Species and Grade: Western red cedar, Grade A; NLGA, WCLIB, or WWPA.
7. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less.
8. Finger Jointing: Allowed.
9. Face Surface: Surfaced (smooth).

B. Hardwood Lumber Trim for Transparent Finish (Stain or Clear Finish):

1. Species and Grade: Red oak, White maple, Alder, Aspen, basswood, cottonwood, sap gum, sycamore, white maple, or yellow poplar, Clear or stained; NHLA.
2. Maximum Moisture Content: 10 percent.
3. Finger Jointing: Not allowed.
4. Gluing for Width: Not allowed.
5. Veneered Material: Not allowed.
6. Face Surface: Surfaced (smooth).
7. Matching: Selected for compatible grain and color.

C. Lumber Trim for Opaque Finish (Painted Finish):

1. Species and Grade: Eastern white pine, Finish or 1 Common; NeLMA or NLGA.
2. Species and Grade: Idaho white, lodgepole, ponderosa, radiata, or sugar pine, 1 Common (Colonial); NLGA or WWPA.
3. Species and Grade: Eastern white, Idaho white, lodgepole, ponderosa, radiata, or sugar pine, Finish or 1 Common (Colonial); NeLMA, NLGA, or WWPA.
4. Species and Grade: White woods, 1 Common; WWPA.
5. Species and Grade: Douglas fir-larch or Douglas fir south, Superior or C & Btr finish; NLGA, WCLIB, or WWPA.
6. Species and Grade: Spruce-pine-fir, 1 Common; NeLMA, NLGA, WCLIB, or WWPA.
7. Species and Grade: Alder, aspen, basswood, cottonwood, gum, magnolia, soft maple, sycamore, tupelo, or yellow poplar; NHLA.
8. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less.
9. Maximum Moisture Content: 10 percent.
10. Finger Jointing: Allowed.
11. Face Surface: Surfaced (smooth).
12. Optional Material: Primed MDF of same actual dimensions as lumber indicated may be used in lieu of lumber.

D. Softwood Moldings for Transparent Finish (Stain or Clear Finish): MMPA WM 4, N-grade wood moldings. Made to patterns included in MMPA's "WM/Series Wood Moulding Patterns."

1. Species: Eastern white, Idaho white, lodgepole, ponderosa, radiata, or sugar pine, Southern pine, Western red cedar, Douglas fir.

2. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less.
3. Finger Jointing: Not allowed.
4. Matching: Selected for compatible grain and color.
5. Base Pattern: WM 620, 9/16-by-4-1/4-inch (14-by-108-mm) ogee base.
6. Shoe-Mold Pattern: WM 129, 7/16-by-11/16-inch (11-by-17-mm) quarter-round shoe mold.
7. Casing Pattern: WM 376, 11/16-by-2-1/4-inch (17-by-57-mm) beaded-edge casing.
8. Mull-Casing Pattern: WM 957, 3/8-by-1-3/4-inch (9.5-by-44-mm) beaded-edge casing.
9. Stop Pattern: WM 886, 3/8-by-1-3/8-inch (9.5-by-35-mm) bullnose stop.
10. Chair-Rail Pattern: WM 297, 11/16-by-3-inch (17-by-76-mm) chair rail.

E. Hardwood Moldings for Transparent Finish (Stain or Clear Finish): MMPA HWM 4, N-grade wood moldings made to patterns included in MMPA's "HWM/Series Hardwood Moulding Patterns."

1. Species: Red oak, White maple, Aspen, basswood, cottonwood, sap gum, sycamore, white maple, or yellow poplar.
2. Kiln-dried softwood or MDF, with exposed surfaces veneered with species indicated, may be used in lieu of solid wood.
3. Maximum Moisture Content: 9 percent.
4. Finger Jointing: Not allowed.
5. Matching: Selected for compatible grain and color.
6. Base Pattern: WM 620, 7/16-by-4-1/4-inch (11-by-108-mm) ogee base.
7. Shoe-Mold Pattern: HWM 129, 7/16-by-11/16-inch (11-by-17-mm) quarter-round shoe mold.
8. Casing Pattern: HWM 376, 1/2-by-2-1/4-inch (13-by-57-mm) beaded-edge casing.
9. Mull-Casing Pattern: HWM 989, 3/16-by-2-inch (5-by-51-mm) square-edge casing.
10. Stop Pattern: HWM 886, 3/8-by-1-3/8-inch (9.5-by-35-mm) bullnose stop.
11. Chair-Rail Pattern: HWM 297, 11/16-by-3-inch (17-by-76-mm) chair rail.

F. Moldings for Opaque Finish (Painted Finish): Made to patterns included in MMPA's "WM/Series Wood Moulding Patterns."

1. Softwood Moldings: MMPA WM 4, P grade.

    a. Species: Eastern white, Idaho white, lodgepole, ponderosa, radiata, or sugar pine.
    b. Maximum Moisture Content: 15 percent with at least 85 percent of shipment at 12 percent or less.

2. Hardwood Moldings: MMPA HWM 4, P-grade.

    a. Species: Aspen, basswood, cottonwood, gum, magnolia, soft maple, tupelo, or yellow poplar.
    b. Maximum Moisture Content: 9 percent.

3. Optional Material: Primed MDF.
4. Finger Jointing: Allowed.
5. Base Pattern: WM 620, 9/16-by-4-1/4-inch (14-by-108-mm) ogee base.
6. Shoe-Mold Pattern: WM 129, 7/16-by-11/16-inch (11-by-17-mm) quarter-round shoe mold.
7. Casing Pattern: WM 376, 11/16-by-2-1/4-inch (17-by-57-mm) beaded-edge casing.
8. Mull-Casing Pattern: WM 957, 3/8-by-1-3/4-inch (9.5-by-44-mm) beaded-edge casing.
9. Stop Pattern: WM 886, 3/8-by-1-3/8-inch (9.5-by-35-mm) bullnose stop.
10. Chair-Rail Pattern: WM 297, 11/16-by-3-inch (17-by-76-mm) chair rail.

2.5 MISCELLANEOUS MATERIALS

A. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.

B. Low-Emitting Materials: Adhesives shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use.

1. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
2. Adhesives shall have a VOC content of 30 g/L or less.

D. Installation Adhesive for Foam Plastic Moldings: Product recommended for indicated use by foam plastic molding manufacturer.

1. Adhesives shall have a VOC content of 50 g/L or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

E. Paneling Adhesive: Comply with paneling manufacturer's written recommendations for adhesives.

1. Adhesives shall have a VOC content of 50 g/L or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

F. Multipurpose Construction Adhesive: Formulation complying with ASTM D 3498 that is recommended for indicated use by adhesive manufacturer.

1. Adhesives shall have a VOC content of 70 g/L or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.6 FABRICATION

A. Back out or kerf backs of the following members, except those with ends exposed in finished work:

1. Interior standing and running trim, except shoe and crown molds.
2. Wood-board paneling.

B. Ease edges of lumber less than 1 inch (25 mm) in nominal thickness to 1/16-inch (1.5-mm) radius and edges of lumber 1 inch (25 mm) or more in nominal thickness to 1/8-inch (3-mm) radius.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Prime paint surfaces of items or assemblies in contact with cementitious materials, before installation.

E. Prime all sides and edges of all finish lumber and plywood

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

B. Before installing interior finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours unless longer conditioning is recommended by manufacturer.

3.3 INSTALLATION, GENERAL

A. Do not use materials that are unsound; warped; improperly treated or finished; inadequately seasoned; too small to fabricate with proper jointing arrangements; or with defective surfaces, sizes, or patterns.

B. Install interior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.

1. Scribe and cut interior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
2. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.
3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining interior finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.5-mm) maximum offset for reveal installation.
4. Install stairs with no more than 3/16-inch (4.7-mm) variation between adjacent treads and risers and with no more than 3/8-inch (9.5-mm) variation between largest and smallest treads and risers within each flight.
5. Coordinate interior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate interior finish carpentry.

3.4 STANDING AND RUNNING TRIM INSTALLATION

A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long, except where necessary. Stagger joints in adjacent and related standing and running trim. Miter at returns, miter at outside corners, and cope at inside corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints where necessary for alignment.

1. Match color and grain pattern of trim for transparent finish (stain or clear finish) across joints.
2. Install trim after gypsum-board joint finishing operations are completed.
3. Install without splitting; drill pilot holes before fastening where necessary to prevent splitting. Fasten to prevent movement or warping. Countersink fastener heads on exposed carpentry work and fill holes.

3.5

3.6 ADJUSTING

A. Replace interior finish carpentry that is damaged or does not comply with requirements. Interior finish carpentry may be repaired or refinished if work

complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.7 CLEANING

A. Clean interior finish carpentry on exposed and semiexposed surfaces. Restore damaged or soiled areas and touch up factory-applied finishes if any.

3.8 PROTECTION

A. Protect installed products from damage from weather and other causes during construction.

B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.

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

END OF SECTION

BUILDING INSULATION

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Board thermal insulation at perimeter foundation wall.

B. Non-expanding foam insulation.

C. Batt thermal insulation with facing in exterior wall and attic/roof.

1.2 ENVIRONMENTAL REQUIREMENTS

A. Install insulation adhesives in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Polystyrene Insulation: ASTM C578, extruded cellular type as manufactured by Styrofoam, or approved equal.

1. Thermal Resistance: R of 10
2. Thickness: 2"
3. Compressive Strength: Minimum 30 psi.
4. Water Absorption: In accordance with ANSI/ASTM D2842 0.3 percent by volume maximum.
5. Edges: Shiplap.

B. Batt Insulation: ASTM C665, Type 1; preformed glass fiber batt, with facing as manufactured by Certainteed, or approved, equal, and conforming to the following:

1. Thermal Resistance: At 6" studs, minimum R=21; at 4" studs, minimum R-13, R-38 in attic/roof.
2. Batt Size: To fit wall stud spacing.
3. Facing:
   a. Kraft paper when in contact with sheathing.
   b. FSK faced elsewhere and where required by code.
4. Overlap facing paper over studs and staple in place.
5. Urea formaldehyde free binding agents.

C. Non-expanding foam insulation: Apply on expanding foam insulation at window frame work and around other penetrations through the exterior wall. Test windows for complete operation. Do not void window warranty.

2.2 ADHESIVES

A. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation boards are dry and ready to receive insulation and adhesive.

3.2 INSTALLATION - BATT INSULATION

A. Install insulation with integral vapor barrier in accordance with insulation manufacturer's instructions.

B. Install in attic joist sapces without gaps or voids. Fitting batts - cut batts 1 inch longer than stud cavity. Cut batts ½-inch wider than non-standard width stud bays to provide snug fit**.**

C. Fit insulation tight in spaces. Leave no gaps or voids.

D. Exterior corners fully insulated - where corner studs create inaccessible void, insulate prior to erecting. (Note: drywall clips can obviate need for third stud.)

3.4 SCHEDULE OF INSULATION

A. Ceiling Insulation: R38 kraft or foil-faced as required fiberglass insulation batts.

B. Stud Wall Insulation: R13 (minimum) at 2 x 4's and R21 (minimum) at 2 x 6's, roll, faced.

C. Building Perimeter Insulation: R10

END OF SECTION

FOAMED-IN-PLACE MASONRY WALL INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. Extent of insulation work is shown on drawings and indicated by provisions of this section.

B. Applications of insulation specified in this section include the following:

1. Foamed-In-Place masonry insulation for thermal, sound and fire resistance values.

1.02 SUBMITTALS

A. Product and technical presentation as provided by the manufacturer.

B. Certified Test Reports: With product data, submit copies of certified test reports showing compliance with specified performance values, including R-values, fire performance and sound abatement characteristics.

C. Material Safety Data Sheet: Submit Material Safety Data Sheet complying with OSHA Hazard Communication Standard, 29 CRF 1910 1200.

1.03 QUALITY ASSURANCE

A. Manufacturing Standards: Provide insulation produced by a single and approved manufacturer. The product must come from the manufacturer pre-mixed to ensure consistency.

B. Installer Qualifications for Foamed-In-Place Masonry Insulation: Engage an experienced dealer/applicator who has been trained and licensed by the product manufacturer and which has not less than three years direct experience in the installation of the product used.

C. Warranty: Upon request, a one year product and installation warranty will be issued by both the manufacturer and installer.

D. Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by a testing agency acceptable to authorities having jurisdiction.

Product must be classified by Underwriters Laboratory ("UL") as to Surface Burning Characteristics

Surface Burning Characteristics: ASTM E-84

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturers of Foamed-In-Place Masonry Insulation: Subject to compliance with requirements, provide products from the following:

1. **"*Core-Fill 500*TM"**; Tailored Chemical Products, P.O. Box 4186, Hickory, N.C. 28603, (800) 627-1687

2. No substitutions allowed.

2.02 INSULATING MATERIALS

A. General: Provide insulating materials which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.

B. Foamed-In-Place Masonry Insulation: Two component thermal insulation produced by combining a plastic resin and catalyst foaming agent surfactant which, when properly ratioed and mixed, together with compressed air produce a cold-setting foam insulation in the hollow cores of hollow unit masonry walls.

1. Surface Burning Characteristics: Maximum flame spread, smoke developed and fuel contributed of 0, 5 and 0 respectively.

2. Combustion Characteristics: Must be noncombustible, Class A building material.

3. Thermal Values: "R" Value of 4.91/inch @ 32 degrees F mean; ASTM C-177.

4. Sound Abatement: Minimum Sound Transmission Class ("STC") rating of 53 and a minimum Outdoor Indoor Transmission Class ("OITC") rating of 44 for 8" wall assembly (ASTM E 90-90).

PART 3 - EXECUTION

3.01 INSPECTION AND PREPARATION

A. Application Assemblies:

Block Walls: 6", 8", 10" or 12" concrete masonry units

Cavity Walls: 2" cavity or greater

3.05 INSTALLATION OF FOAMED-IN-PLACE INSULATION

A. General: Install foamed-in-place insulation from interior, or as specified, prior to installation of interior finish work and after all masonry and structural concrete work is in place; comply with manufacturer's instructions.

B. Installation: Fill all open cells and voids in hollow concrete masonry walls where shown on drawings. The foam insulation shall be pressure injected through a series of 5/8" to 7/8" holes drilled into every vertical column of block cells (every 8" on center) beginning at an approximate height of four (4) feet from finished floor level. Repeat this procedure at an approximate height of ten (10) feet above the first horizontal row of holes (or as needed) until the void is completely filled. Patch holes with mortar and score to resemble existing surface.

END OF SECTION

VAPOR BARRIERS

PART 1 - GENERAL

1.1 PRODUCTS

A. Vinyl Film Vapor Barrier: 10-mil virgin polyolefin resins film rated 0.036 perms or less. Class *"A"* per ASTM E 1745, ASTM E 96 and ASTM F 1249.

PART 2 – EXECUTION

2.1 INSTALLATION

A. Adhesive Anchorage: Except where specifically indicated to be penetrated with fasteners or other anchorage devices, install vapor barriers with adhesives or self-adhesive tape of type recommended by vapor barrier manufacturer to seal all radon gas and vapors.

B. Anchorage: Install vapor barriers with adhesive or fasteners as appropriate for supporting substrate, and of type recommended by vapor barrier manufacturer.

C. Provide lapped seams and lap vapor barriers onto other work at edges of coverages and at penetrations of barriers by other work.

D. Seal lapped seams and laps onto other work with adhesive or self-adhesive tape of type recommended by vapor barrier manufacturer. Before covering over vapor barriers with other (concealing) work, patch punctures and tears with adhesively applied barrier material or tape with perm rating equal to barrier rating.

END OF SECTION

FIBER CEMENT SIDING AND TRIM

PART 1 GENERAL

PART 2

2.1 SECTION INCLUDES

A. Fiber cement lap siding, trim, fascia, moulding and accessories; James Hardie HZ5 Engineered for Climate Siding.

B. Factory-finished fiber cement lap siding, trim, fascia, moulding and accessories; James Hardie HZ5 Engineered for Climate Siding.

2.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry: Wood framing and bracing.

B. Section 06100 - Rough Carpentry: Sheathing.

C. Section 07210 - Insulation: Exterior wall insulation.

2.3 REFERENCES

A. ASTM C1186 - Standard Specification for Flat Fiber-Cement Sheets

B. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.

C. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

2.4 SUBMITTALS

A. Submit under provisions of Section 013000.

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. Shop Drawings: Provide detailed drawings of atypical non-standard applications of cementitious siding materials which are outside the scope of the standard details and specifications provided by the manufacturer.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches (100 by 150 mm), representing actual product, color, and patterns.

2.5 QUALITY ASSURANCE

A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.

2.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

2.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

2.8 WARRANTY

A. Product Warranty: Limited, non-pro-rated product warranty.

1. HardiePlank HZ5 lap siding for 30 years.
2. HardiPanel HZ5 vertical siding for 30 years.
3. HardieSoffit HZ5 panels for 30 years.

B. Finish Warranty: Limited product warranty against manufacturing finish defects.

1. When used for its intended purpose, properly installed and maintained according to James Hardie's published installation instructions, James Hardie's ColorPlus finish with ColorPlus Technology, for a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip. Finish warranty includes the coverage for labor and material.

C. Workmanship Warranty: Application limited warranty for 2 years.

PART 3 PRODUCTS

3.1 MANUFACTURERS

A. Acceptable Manufacturer: James Hardie Building Products, Inc.

B. Requests for approval of equal substitutions will be considered in accordance with provisions of Section 016000.

3.2 SIDING

A. HardiePlank HZ5 lap siding, requirement for Materials:

1. Fiber-cement Siding - complies with ASTM C 1186 Type A Grade II.
2. Fiber-cement Siding - complies with ASTM E 136 as a noncombustible material.
3. Fiber-cement Siding - complies with ≈STM E 84 Flame Spread Index = 0, Smoke Developed Index = 5.
4. National Evaluation Report No. NER 405 (BOCA, ICBO, SBCCI, IBC, IRC).

B. Lap Siding: HardiePlank HZ5 Lap siding with a sloped top, beveled drip edge and nailing line as manufactured by James Hardie Building Products, Inc.

1. Type: Select Cedarmill 7-1/4 inches (184 mm) with 6 inches (152 mm) exposure.

C. Trim:

1. HardieTrim HZ5 boards and HardieTrim HZ boards as manufactured by James Hardie Building Products, Inc.

2. HardieTrim HZ5 Fascia boards as manufactured by James Hardie Building Products, Inc.

3. Artisan HZ5 Accent trim as manufactured by James Hardie Building Products, Inc.

3.3 FASTENERS

A. Wood Framing Fasteners:

1. Wood Framing: 4d common corrosion resistant nails.
2. Wood Framing: 6d common corrosion resistant nails.
3. Wood Framing: 8d box ring common corrosion resistant nails.
4. Wood Framing: 0.089 inch (2.2 mm) shank by 0.221 inch (5.6 mm) head by 2 inches (51 mm) corrosion resistant siding nails.
5. Wood Framing: 0.093 inch (2.4 mm) shank by 0.222 inch (5.6 mm) head by 2 inches (51 mm) corrosion resistant siding nails.
6. Wood Framing: 0.093 inch (2.4 mm) shank by 0.222 inch (5.6 mm) head by 2-1/2 inches (64 mm) corrosion resistant siding nails.
7. Wood Framing: 0.091 inch (2.3 mm) shank by 0.221 inch (5.6 mm) head by 1-1/2 inches (38 mm) corrosion resistant siding nails.
8. Wood Framing: 0.091 inch (2.3 mm) shank by 0.225 inch (5.7 mm) head by 1-1/2 inches (38 mm) corrosion resistant siding nails.

B. Metal Framing:

1. Metal Framing: 1-1/4 inches (32 mm) No. 8-18 by 0.375 inch (9.5 mm) head self-drilling, corrosion resistant S-12 ribbed buglehead screws.
2. Metal Framing: 1-5/8 inches (41 mm) No. 8-18 by 0.323 inch (8.2 mm) head self-drilling, corrosion resistant S-12 ribbed buglehead screws.
3. Metal Framing: 1 inch (25 mm) No. 8-18 by 0.323 inch (8.2 mm) head self-drilling, corrosion resistant ribbed buglehead screws.

4. Metal Framing: 1 inch (25 mm) No. 8-18 by 0.311 inch (7.9 mm) head self-drilling, corrosion resistant S-12 ribbed buglehead screws.
5. Metal Framing: 1.5 inch (38mm) [AGS-100] .100 inches by 25 inches (2540 mm by 635 mm) ET&F Pin or equivalent pneumatic fastener.
6.

C. Masonry Walls (CMU):

1. Masonry Walls: Aerico Stud Nail, ET&F ASM No.-144-125, 0.14 inch (3.6 mm) shank by 0.30 inch (7.6 mm) head by 2 inches (51 mm) long corrosion resistant nails.

3.4 FINISHES

A. Factory Primer: Provide factory applied universal primer.

1. Primer: Factory primed by James Hardie.

B. Factory Finish: Refer to Exterior Finish Schedule.

1. Product: ColorPlus Technology by James Hardie.

2. Definition: Factory applied finish; defined as a finish applied in the same facility and company that manufactures the siding substrate.

3. Process:

a. Factory applied finish by fiber cement manufacturer in a controlled environment within the fiber cement manufacturer's own facility utilizing a multi-coat, heat cured finish within one manufacturing process.

b. Each finish color must have documented color match to delta E of 0.5 or better between product lines, manufacturing lots or production runs as measured by photospectrometer and verified by third party.

4. Protection: Factory applied finish protection such as plastic laminate that is removed once siding is installed

5. Accessories: Complete finishing system includes pre-packaged touch-up kit provided by fiber cement manufacturer. Provide quantities as recommended by manufacturer.

C. Factory Finish Color for Trim, Soffit and Siding Colors:

1. Arctic White – All trim and soffit
2. Gray Slate – All siding (excluding flat trim pieces).

PART 4 EXECUTION

4.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Nominal 2 inch by 4 inch (51 m by 102 mm) wood framing selected for minimal shrinkage and complying with local building codes, including the use of water-resistive barriers or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.

1. Install water-resistive barriers and claddings to dry surfaces.
2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
3. Protect siding from other trades.

D. Minimum 20 gauge 3-5/8 inch (92 mm) C-Stud 16 inches maximum on center or 16 gauge 3-5/8 inches (92 mm) C-Stud 24 inches (610 mm) maximum on center metal framing complying with local building codes, including the use of water-resistive barriers and/or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.

1. Install water-resistive barriers and claddings to dry surfaces.
2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
3. Protect siding from other trades.

4.2 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.

C. Install a water-resistive barrier is required in accordance with local building code requirements.

D. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements.

E. Install Engineered for ClimateTM HardieWrapTM weather barrier in accordance with local building code requirements.

F. Use HardieWrapTM Seam Tape and joint and laps.

G. Install HardieWrapTM flashing, and HardieWrapTM Flex Flashing.

4.3 INSTALLATION - HARDIEPLANK HZ5 LAP SIDING AND ARTISAN HZ5 LAP SIDING

A. Install materials in strict accordance with manufacturer's installation instructions.

B. Starting: Install a minimum 1/4 inch (6 mm) thick lath starter strip at the bottom course of the wall. Apply planks horizontally with minimum 1-1/4 inches (32 mm) wide laps at the top. The bottom edge of the first plank overlaps the starter strip.

C. Allow minimum vertical clearance between the edge of siding and any other material in strict accordance with the manufacturer's installation instructions.

D. Align vertical joints of the planks over framing members.

E. Maintain clearance between siding and adjacent finished grade.

F. Locate splices at least one stud cavity away from window and door openings.

G. Wind Resistance: Where a specified level of wind resistance is required Hardieplank lap siding is installed to framing members and secured with fasteners described in Table No. 2 in National Evaluation Service Report No. NER-405.

H. Locate splices at least 12 inches (305 mm) away from window and door openings.

4.4 INSTALLATION - HARDIETRIM HZ5 BOARDS

A. Install materials in strict accordance with manufacturer's installation instructions. Install flashing around all wall openings.

B. Fasten through trim into structural framing or code complying sheathing. Fasteners must penetrate minimum 3/4 inch (19 mm) or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.

C. Place fasteners no closer than 3/4 inch (19 mm) and no further than 2 inches (51 mm) from side edge of trim board and no closer than 1 inch (25 mm) from end. Fasten maximum 16 inches (406 mm) on center.

D. Maintain clearance between trim and adjacent finished grade.

E. Trim inside corner with a single board trim both side of corner.

F. Outside Corner Board Attach Trim on both sides of corner with 16 gage corrosion resistant finish nail 1/2 inch (13 mm) from edge spaced 16 inches (406 mm) apart, weather cut each end spaced minimum 12 inches (305 mm) apart.

G. Allow 1/8 inch gap between trim and siding.

H. Seal gap with high quality, paint-able caulk.

I. Shim frieze board as required to align with corner trim..

J. Fasten through overlapping boards. Do not nail between lap joints.

K. Overlay siding with single board of outside corner board then align second corner board to outside edge of first corner board. Do not fasten HardieTrim boards to HardieTrim boards.

L. Install HardieTrim Fascia boards to rafter tails or to sub fascia.

4.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SHEET METAL / FLASHINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Copings and sill flashings.
2. Gutters and downspouts.
3. Counterflashings over vent stacks.

1.2 SYSTEM DESCRIPTION

A. Conform to SMACNA Architectural Sheet Metal Manual for sizing gutter and downspout component for rainfall intensity determined by a storm occurrence of one in 10 years.

1.3 QUALITY ASSURANCE / REFERENCES

A. Perform Work in accordance with SMACNA - Architectural Sheet Metal Manual.

1.4 STORAGE AND HANDLING

A. Carefully handle sheet metal items to avoid damage to surfaces, edges and ends. Crated materials shall not be uncrated until ready for use. Store materials in dry, weather-tight ventilated areas until immediately before installation.

B. Damaged or permanently stained materials that cannot be restored to like-new condition shall be removed from the site and replaced at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 SHEET MATERIALS

A. Aluminum Sheet: ASTM B209, 3003 alloy, H14 temper; shop pre-coated with coating of color to match adjacent.

B. Galvanized Steel: ASTM A525, G90, 24 ga. core steel. Galvanized Steel Sheet: (ASTM A 526M, Z 275), commercial quality, or ASTM A 527, G 90 (ASTM A 527M, Z 275), lock-forming quality, hot dipped galvanized, mi11 phosphatized where indicated for painting; not less than 0.0396 inch (1.0 mm) thick, unless otherwise indicated.

C. Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the items indicated.

D. Baked Enamel Finish: Thermosetting-modified acrylic enamel primer and topcoat system complying with AAMA 603.8, except with a minimum dry film thickness of 1.5 mils, medium gloss/

E. NOT ACCEPTABLE: Mill finish flashing.

2.2 ACCESSORIES

A. General: Accessories and other items essential to complete the sheet metal installation shall be provided and shall be of the same materials as the items to which they are applied.

B. Fasteners: Galvanized steel or aluminum with soft neoprene washers at exposed fasteners. Finish exposed fasteners same as flashing metal.

C. Gutter and Downspout Anchorage Devices: SMACNA requirements.

D. Gutter Supports: Aluminum gutter hangers compatible with standing seam roof, space 36” OC.

E. Downspout Supports: Aluminum straps, Kynar 500 finish.

F. Protective Backing Paint: Bituminous.

G. Slip Sheet: Rosin sized building paper.

H. Bedding Compound: Rubber-asphalt type.

I. Drip edges: White, 18 gage aluminum.

2.3 COMPONENTS

A. Vent Stacks (iff applicable): 2-piece galvanized pipe collar or prefabricated plastic collar. Paint to match roof color.

1. Basis of design: York Manufacturing, Inc., self-sealing roof flashing.

B. Gutters: Pre-coated flat aluminum sheet, 6” x .050” thick sculptured profile. Color to match roof. Kynar 500 finish.

C. Downspouts: Pre-coated flat aluminum sheet, 6” x .050” thick round profile. Color to match roof. Kynar 500 finish.

D. Downspout Outlets, Downspout Straps and Support Brackets, Joint Fasteners, Down Spout Strainers, Downspout Header: Profiled to suit downspouts.

E. Cap Flashing Drip Edge: Pre-coated, aluminum sheet, .020” thick. Pre-coated galvanized steel sheet where in contact with masonry.

F. Parapet Coping: Baked enamel finish aluminum profiles per detail on drawing.

2.4 FABRICATION

A. Form components true to shape, accurate in size, square, and free from distortion or defects. Form pieces in longest practical lengths.

B. Fabricate flashings to allow toe to extend two (2) inches over roofing. Return and brake edges.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.

3.2 INSTALLATION

A. Conform to drawing details and SMACNA manual.

B. Apply plastic cement compound between metal work and felt flashings.

C. Fit components tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Provide and install flashing at all roof to wall conditions, projections of wood beams through exterior walls, exterior openings, and elsewhere as required to provide watertight/weatherproof performance.

3.3 INSTALLATION – WINDOW FLASHING

A. Window Flashings

1. Additional flashings shall be installed at all window opening perimeters per EEBA Builder's Guide and detail sheets in the construction documents and Pennrose design standards.

END OF SECTION

METAL ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concealed fastener metal roofing, trim and accessories:
   1. Versaloc Metal Roofing System.

1.2 RELATED SECTIONS

A. Section 061001 - Sheathing.

1.3 SUBMITTALS

A. Submit under provisions of Section 013000 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Storage and handling requirements and recommendations.
   2. Installation methods.

C. Shop Drawings: Include details of construction and relationship with adjacent construction.

D. Selection Samples: For each finish product specified, two color charts representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.

B. Installer Qualifications: Minimum 2 year experience installing similar products.

1.5 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to starting work of this section.

1.6 DELIVERY, STORAGE, AND HANDLING

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.

1.7 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.

1.8 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. Acceptable Manufacturer: GulfCoast Supply & Manufacturing, www.gulfcoastsupply.com

B. Requests for substitutions will be considered in accordance with provisions of Section 016000 – Material Manufacturer Substitution Policy.

2.2 VERSALOC METAL ROOFING SYSTEM

A. Product: Versaloc as manufactured by GulfCoast Supply & Manufacturing.
   1. Design: Concealed clip mechanical lock seam. Application over continuous wood or steel deck.
   2. Coverage: 12 inches (305 mm) Net Coverage.
   3. Seam Height: 1 ½ inches (25 mm).
   4. Steel: 24 Gauge (0.61 mm).
   5. Aluminum: 0.040 Inch (1.0 mm).
   6. Minimum Slope: 1/4:12.
   7. Deck Structure: 15/32 inch (11.6 mm) CDX (minimum).
   8. Concealed Anchoring Clip: Clip as engineered by Gulfcoast Supply and Manufacturing. UL-90 performance.
   9. Finish: Kynar 500
   10. Color: From manufacturer’s full Kynar 500 selection including non-stock and custom color match.
   11. Substrate/Warranty:
      a. AZ-50 Gulfalume / 40/30 Year Standard Paint Finish Warranty.
      b. 20 Year Water Tightness Warranty.

2.3 METAL TRIM

A. Ridge Caps: Provide manufacturer's standard units based on roof configuration and pitch and as indicated on the Drawings.

   1. Attach with Z-flashing, Titebond and rivets

B. Eave Drip: Provide manufacturer's standard units based on roof configuration and pitch and as indicated on the Drawings.

   1. Extended eave drip

C. Gambrel Flashing: Transition Flashing: Provide manufacturer's standard units based on roof configuration and pitch and as indicated on the Drawings.

   1. Attach with Z-flashing and rivets on lower side, panel starter with pancake screws on the upper side.

2.4 ACCESSORIES

A. Peel and Seal Tape: Provide manufacturer's standard seals.

B. Touch-up Paint: Provide manufacturer's standard touch-up paint.

1. Applied in small areas only (less than 2-square inches). Panels with more substantial damage to be replaced with new panels.

C. Butyl tape: Provide manufacturer's standard products.

D. Titebond: Provide manufacturer's standard products.

1. Color to match panels.

E. Low Profile Insulation: Provide manufacturer's standard units based on roof configuration and pitch and as indicated on the Drawings.

F. Pancake Screws: Provide manufacturer's standard products.

G. Stainless Rivets: Provide manufacturer's standard products.

1. Attach trim pieces to Z-flashing, and any other light gage to light gage metal connection.

H. Lap Screws: Provide manufacturer's standard products.

1. Long-life screws.

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.

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

MANUFACTURED ROOF SPECIALITIES

PART 1 - GENERAL

1.1 General:

A. Submittals: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

1. Product data including manufacturer's technical data, installation instructions and general recommendations for each product specified.
2. Shop drawings indicating layout, joining, profiles, accessories, anchorages, connections and relationship to adjoining construction.
3. Samples of each type of exposed finish required.

B. Quality Assurance: Provide products which comply with applicable requirements of SMACNA "Architectural Sheet Metal Manual," except as otherwise indicated.

1.2 Products:

A. Aluminum Extrusions: ASTM B 221 for 6063-T5.

B. Aluminum Sheet: ASTM B 209 for 5005-H15. .

C. Galvanized Steel Sheets: ASTM A 526, hot dipped galvanized in accordance with ASTM a 526, with G90 coating designation.

D. Aluminum Coping System: System consisting of coping formed from minimum 0.050inch-thick aluminum sheet to profile and of thickness indicated; minimum 20 gage, zinc-coated steel anchor plate or cleat located at coping joint; with prefabricated inside and outside comers, miters welded before finishing; without exposed fasteners.

1. Products: One of the following:

a. Type AP Standard Coping; Architectural Products Co.
b. Rapid-Loc Coping; Atas Aluminum Corp.
c. Splice-Lock Coping Cover System; Cheney Flashing Co.
d. Permasnap Coping; W. P. Hickman Co.
e. Neo-Lock Coping; Merchant and Evans Industries, Inc.
f. Snap-Lok Coping; MM Systems Corp.
g. Pac-Loc Coping; Petersen Aluminum Corp.
h. Or equal.

E. Fasciae: Provide fasciae with shop mitered and welded comers. Include water dams, anchor plates, cleates or other attachment devices, concealed splice plates, and trim and other accessories indicated or required.

1. Material: Formed aluminum sheet not less than 0.050 inch thick.
2. Scuppers: Provide scuppers designed and manufactured for use with fasciae of the same material.

F. Edge Stops: Provide edge stops with shop mitered and welded comers. Include water dams, anchor plates, cleats or other attachment devices, concealed splice plates, and trim and other accessories indicated or required with no exposed fasteners.

1. Material: Formed aluminum sheet not less than 0.050 inch thick.
2. Scuppers: Provide scuppers designed and manufactured for use with gravel stops and of the same material.

G Fabrication: Provide items designed and fabricated to fit applications indicated and to
perform optimally with respect to weather resistance, water tightness, durability, strength, and uniform appearance. Fabricate running lengths to allow controlled expansion not only for movement of metal components in relationship to one another but also to adjoining dissimilar materials, including flashing and roofing membrane materials, in a manner sufficient to prevent water leakage, deformation or damage.

H Aluminum Finishes: Comply with AMP 501 "Finishes for Aluminum" and AMP 505 "Applied Coatings" for finish designations and application recommendations. For components which are assembled or welded in factory, apply finish after fabrication is completed.

1.3 Execution:

A. Installation: Comply with manufacturer's instructions. Coordinate with installation of roof decks and other substrates to produce a watertight assembly capable of withstanding inward and outward loading pressures, and thermal and lateral loads. Isolate metals from dissimilar metals or corrosive substrates using bituminous coatings or other means of permanent separation to prevent electrolytic corrosion.

B. Clean and protect exposed metal surfaces in accordance with manufacturer's instructions.
Touch-up damaged metal coatings.

END OF SECTION

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes joint sealants for the following applications, including those specified by reference to this Section: following applications:

1. Interior and exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1.2 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (l50-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Preconstruction field test reports.

D. Compatibility and adhesion test reports.

E. Product test reports.

1.4 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates according to the method in ASTM C 1193 that is appropriate for the types of Project joints.

1.5 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.

D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

E. Single Component Neutral Curing Non-Staining Silicone Sealant:

1. Products:
   a. Dow Corning; 795
   b. Pecora Corporation: 895NST Silicone
   c. Or equal
2. Type and Grade: S (single component) and NS (non sag).
3. Class: 50.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: NT, M, A and O.

F. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant:

1. Products:
   a. Dow Corning; 795.
   b. Pecora Corporation: 898NST Silicone Sealant
   c. Or equal.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

2.4 ACOUSTICAL JOINT SEALANTS

A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products:

   a. Pecora Corporation; AIS-919 Acoustical and Insulation Sealant or AC-20 FTR Acoustical and Insulation Sealant.
   b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.
   c. Or equal.

2.5 PREFORMED JOINT SEALANTS

A. Preformed Silicone-Sealant System: Manufacturer's standard system consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.

1. Products:

   a. Dow Corning Corporation; 123 Silicone Seal.
   b. GE Silicones; UltraSpan US 1100.
   c. Pecora Corporation; Sil-Span.
   d. Tremco; Spectrem Ez Seal.
   e. Or equal.

B. Preformed Foam Sealant: Manufacturer's standard mildew-resistant, nonmigratory, nonstaining, preformed, precompressed, open-cell foam sealant that is manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent.

1. Products:
   a. EMSEAL Joint Systems, Ltd.; Emseal25V.
   b. illbruck Sealant Systems, Inc.; Wilseal 600.
   c. Polytite Manufacturing Corporation; Polytite B.
   d. Polytite Manufacturing Corporation; Polytite Standard.
   e. Sandell Manufacturi11g Co., Inc.; Polyseal.
   f. Density: Manufacturer's standard 5.5 to 6.5 lb/cu. ft. (90 to 110 kg/cu. m).

2.6 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg *C).* Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

DO NOT INSTALL BELOW 40° F

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.

    a. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

2. Remove laitance and form-release agents from concrete.
    a. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of *joint* sealants.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Non sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

G. Installation of Preformed Silicone-Sealant System: Comply with manufacturer's written instructions.

H. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

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

END OF SECTION

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including general and supplementary conditions and division 1 specifications, apply to this section.

1.2 SUMMARY OF WORK INCLUDED

A. Sections “General Conditions”, “Special Requirements” and “General Requirements” form a part of this section by this reference thereto and shall have the same force and effect as if printed herewith in full.

B. Furnish, deliver, and coordinate all mechanical and electronic finish hardware as indicated, specified and required. Include all hardware under this section that is not specified in other sections, whether or not such hardware is scheduled herein, and include all trim, attachments and fastenings specified or required for proper and complete installation for given application. Items of hardware (specifically, mounting accessories required by door or frame details and required to properly install hardware and have it function properly and in conjunction with specified interacting hardware) not definitely specified herein and necessary for completion of the work shall be provided. Such items shall be of type and quality suitable to the service required and comparable to adjacent hardware. Where size and shape of member is such as to prevent the use of types specified, hardware shall be furnished of suitable types having as nearly as practicable the same operation and quality as the type specified.

C. Type: Typical finish hardware required includes the following:

1. Hinges
2. Lock cylinders and keys
3. Lock and Latchsets
4. Bolts
5. Exit Devices
6. Push/pull handles and plates/ kickplates
7. Closers
8. Overhead holders
9. Door trim
10. Seals, including Astragals or meeting seals on door pairs
11. Weather-stripping for exterior doors
12. Thresholds
13. Security products and Misc. Items
14. Electrical and electronic materials and systems

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Specifications sections directly related shall be effectively coordinated:

1. Metal Doors and Frames: Section 081113

1.4 REFERENCES

A. Documents and Institutes that shall be used in estimating, detailing and installing the items specified.

1. BHMA A156 – Builders Hardware Manufacturers Association
2. ANSI A117.1 – American National Standard Institute
3. NFPA 80 – Fire Doors and Windows 2019 Edition
4. NFPA 101 – Life Safety Code 2018 Edition
5. NFPA 105 – Installation of Smoke Control Door Assemblies 2019 Edition
6. Local and State Building Codes
7. Underwriters Label for Fire Rated Doors and Assemblies
8. Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames
9. Door Hardware Institute (DHI); 2020
10. Specifications for Making Buildings and Facilities Accessible to And Usable by Physically Challenged People ICC/ANSI A117.1 – 2008

1.5 SUBMITTALS

A. Manufacturer: Products of finish hardware supplied shall be selected from manufacturers mentioned in this document as approved by the architect/owner's representative prior to bid date.

B. Suppliers shall be recognized architectural finish hardware suppliers, with warehousing facilities who have been furnishing hardware in the projects vicinity for a period of not less than 2 years and who is or employs an experienced A.H.C. (or equal experience and technical skills), who is available at reasonable times during the course of the work for consultation about products, hardware requirements, to owner, professional, contractor or other contracted party.

C. Installer Qualifications: Must be qualified to install all Builders Hardware to the extent that all hardware is installed and properly operates to the manufacturer's standards; including operational, functional, within dimensional parameters, to the manufacturer's templates, and strictly within the guidelines offered by manufacturer's product's instructions. Final adjustment shall be responsibility of installer, and shall be within tolerances as set by the product manufacturer's guidelines, both written and verbal, if applicable.

D. Product Data: Manufacturer's data for each different piece of hardware, with installation instructions. Two (2) complete sets of catalog cuts shall accompany the finish hardware schedule. The list of cuts shall include the item, manufacturer, and item number.

E. Hardware Schedule: Show manufacturer's complete identification for every item

for every door.

1. Supplier shall submit three (3) physical copies or a digital copy of a complete hardware schedule referencing location of door, door number, room number, corridor number, exterior or interior, door size, door swing, door and frame type, and any more significant information required for the professional to identify door, frame, hardware, and any other pertinent information required to evaluate compliance of materials. As noted below, only a vertical type hardware schedule shall be deemed acceptable.
2. Cross-reference to item names and designations in contract documents.
3. Indicate door/frame materials and sizes.
4. Explain number codes and abbreviations.
5. Indicate hardware mounting heights or locations, if different from those specified or if not specified.
6. Indicate finish for each item.
7. Preliminary schedule will be reviewed and accompanied by product data.
8. Provide Door and Hardware Institute's format vertical type hardware schedule showing door number, location, to and from rooms, swing of door, and list all hardware provided for that specific door type of operation. Horizontal type hardware schedules shall not be considered due to the cross-referencing required.

F. Keying Schedule:

1. Supplier required to meet with owner to finalize keying requirements and to propose final instructions in writing for owner's approval. Upon approval supplier shall prepare a final keying schematic chart and a listing of all key changes by door and lock showing all levels of keyed cylinders and approved expansion, and furnish to owner in duplicate. Construction keyed or temporary cores shall be furnished as required by the owner's representative during the construction phase.

G. Operation and Maintenance Data: For operating parts and finishes.

1. Supplier shall furnish manufacturer's maintenance and parts manuals (as available from manufacturers) for all hardware items furnished. Manuals shall be delivered to owner's representative prior to project closeout.

1.6 QUALITY ASSURANCE

A. The quality of all items of hardware has been clearly indicated by the manufacturer's name and/or product number. Certain products are specified without substitution, and shall be furnished as specified. Requests for substitution must be in writing, submitted for review in accordance with section 016000. Quality levels as specified herein shall be assured and warranted by the supplier.

1. Single source responsibility: Obtain each type of hardware (locksets, exit devices and closers) from a single manufacturer.

1.7 PROJECT CONDITIONS

A. Sequence submittal of hardware schedule and door and frame submittals, allowing adequate time for review and resubmittals, if required, so that construction is not delayed; provide adequate information for review.

B. Provide hardware installation templates to installers of hardware and to fabricators of other work, which is required to be prepared in the shop or factory for hardware installation.

C. Coordinate shop drawings of other work so that proper preparation is made. Coordination of the following trades shall be included as applicable.

1. Wood Door Manufacturer.
2. Hollow Metal Manufacturer
3. Aluminum manufacturer and/or supplier
4. Electrical (and associated trades such as Security and Alarms) where electronic hardware is specified

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver hardware at the times and to the locations required for timely installation.

B. Provide a locked storage area controlled by the contractor for hardware not yet installed; take special care to prevent loss of long-lead items.

1.9 MAINTENANCE

A. Provide all adjustment and maintenance tools recommended by hardware manufacturers.

B. Final adjustment shall be responsibility of installer, and shall be within tolerances as set by the product manufacturer’s guidelines and templates, both written and verbal, if applicable. It is the responsibility of the aluminum installer / supplier to make all adjustments to the hardware, installed on their doors and frames, for a period of one year from installation. All other adjustments to hardware on the project shall be the responsibility of the General Contractors Installer for a period of one year from installation.

PART 2 - PRODUCTS

A. In addition to requirements of the hardware schedule, comply with the requirements below.

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements of all previous sections and conditions; manufacturers (or suppliers) offering products that may be incorporated in this work shall be as approved by Architect. Requests for substitution shall be made in writing to Architect with sufficient product details, cross-references testing data, and any additional supportive materials (including

samples if required) as Architect shall require.

1. Butts and Hinges(or equivalent).
    a. McKinney Manufacturing Co (Assa Abloy)
    b. Stanley Hardware
    c. YKK AP
    d. Bommer Manufacturing
    e. Ives (Ingersoll-Rand)
    f. Hager
2. Pivots (or equivalent):
    a. Rixon (Assa Abloy)
    b. Glynn- Johnson (Ingersoll-Rand)
3. Cylinders (or equivalent) - Furnished as a new key system by supplier.
    a. Yale (Assa Abloy)
    b. Corbin-Russwin (Assa Abloy)
    c. Sargent (Assa Abloy)
    d. Schlage (Ingersoll-Rand)
    e. Falcon (Ingersoll-Rand)
4. Cylindrical Locks (or equivalent):
    a. Yale PB5400LN, PB5300LN & PB4300LN (Assa Abloy)
    b. Corbin Russwin, CL3300PZD, CL3900PZD, CL3300PZD (Assa Abloy)
    c. Sargent 10G LP, 7GLP (Assa Abloy)
    d. Schlage ND Series , AL Series, S Series , F Series (Ingersoll-Rand)
    e. Falcon T Series, B Series, W Series, Y Series (Ingersoll-Rand)
5. Wall & Floor Stops (or equivalent):
    a. Trimco (Assa Abloy)
    b. Rockwood Manufacturing Co.
    c. Burns Manufacturing
    d. Ives (Ingersoll-Rand)
6. Overhead Stops (or equivalent):
    a. Trimco Manufacturing (Assa Abloy)
    b. Sargent (Assa Abloy)
    c. Glynn-Johnson (Ingersoll-Rand)
7. Exit Devices and Trim (or equivalent):
    a. Yale (Assa Abloy)
    b. Corbin Russwin (Assa Abloy)
    c. Sargent (Assa Abloy)
    d. Von Duprin
    e. Monarch 18 Series Device (Ingersoll-Rand)
8. Surface Closers (or equivalent):
    a. Norton Door Controls 7500BF ALUM (Assa Abloy)
    b. Corbin Russwin DC2200 ALUM (Assa Abloy)
    c. Sargent 351 ALUM (Assa Abloy)
    d. LCN 4000 Series, 1000 Series (CAST IRON) (Ingersoll-Rand)
    e. Dor-o-matic SC70 Series, SC80 Series ALUM Ingersoll-Rand)
9. Flat Goods (or equivalent):

a. Trimco (Assa Abloy)
b. Rockwood Manufacturing Co.
c. Burns Manufacturing
d. Ives (Ingersoll-Rand)

2.2 SCHEDULED HARDWARE

A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware are indicated in the “Hardware Sets” at the end of this section. Products are identified by using hardware designation numbers of the following:

1. Manufacturers Product Designations: The product designation and name is listed for each type of hardware. Provide either the product designated or where more than one manufacturer is specified in part 2 under the article “Manufacturers” for each hardware type, the comparable product of one of the manufacturers.

2.3 MATERIALS AND FABRICATION

A. Manufacturer’s Names and Trade Names: Display of names, logos, or other identification is acceptable on lock or hinge edge of door, but not where visible on either face of door.

1. Exception: As directed by or acceptable to the architect.
2. Exception: Manufacturer’s name or other identification on face of lock cylinders.

B. Fasteners: Provide hardware prepared by the manufacturer with fastener holes for machine screws, unless otherwise indicated.

1. Provide all fasteners required for secure installation. Utilize concealed fasteners wherever possible. Where through bolts are utilized, provide finish-threaded caps to fully conceal nuts.

a. Select fasteners appropriate to substrate and material being fastened.

2. Use Flathead Phillips screws unless otherwise indicated. - At all secure areas provide security fasteners (Security head) of same type.
3. Use wood screws or through bolts dependent on wood door and hardware manufacturer’s requirements for installation in wood.
4. Use fasteners impervious to corrosion outdoors and on exterior doors.
5. Self-drilling "Tek" type screws are not acceptable. Use only fasteners supplied by hardware manufacturer.
6. Where it is not possible to reinforce substrate adequately for screws, use through-bolts with sleeves or use sex bolts.

a. Do not use where head or nut would be exposed on face of door, unless specifically indicated or made necessary by other requirements.

b. Finish exposed heads and nuts the same as hardware on that side of the door.

7. Use expansion shield anchors in concrete and masonry.

2.4 HINGES, BUTTS, CONTINUOUS HINGES AND PIVOTS

A. Manufacturers:

1. Provide products complying with requirements of the contract document. Acceptable products shall be as specifically listed in the hardware sets herein by manufacturer's number and series. Provide either the product designated or where more than one manufacturer is specified in part 2, under the article "Manufacturers" for each hardware type, the comparable product of one of the manufacturers.

B. Butt Hinges: American made five-knuckle, exposed tip butt hinges.

1. Comply with applicable requirements of BHMA A156.1.
2. Use heavy weight hinges where scheduled at high frequency entrances.
3. Use full mortise hinges unless otherwise specified.
4. Dimensions: As indicated, within limits prescribed by ANSI/BHMA A 156.7.

a. Size(s): As prescribed by ANSI/BHMA A 156.7. - Finish as specified.
b. Size hinges to suit thickness of door, including applied facings.
c. Provide non-removable pins or safety studs for out-swinging doors with keyed lock or exit function.
a. Quantity: Provide minimum of 3 hinges or pivots on each door for doors up to and including 90". Add one additional hinge or Pivot for each 30" height increment increase.

C. Pivots - Provide type as specified in hardware sets.

2.5 LOCKS, LATCHES, AND BOLTS

A. Manufacturers:

1. Locksets, Latchsets, and Exit Devices:

a. Provide products complying with requirements of the contract document. Acceptable products shall be as specifically listed herein by manufacturer's number and series.
b. All locksets shall be as listed in hardware sets. Neither plastic inserts nor tubular levers shall be furnished in the either levers or latches. All locksets shall be furnished with solid lever handles.
c. All cylindrical lever locksets shall feature a freewheeling locking mechanism to help extend the life of the lock and reduce maintenance.
d. Provide copy of 1 year written warranty for all cylindrical locksets

when submitting hardware schedule for architect's approval.

2. Exit Devices: All exit devices for this project shall carry a written five-year manufacturer warranty. Provide copy of warranty when submitting hardware schedule for architect's approval. Use devices of only one manufacturer. All exit devices shall be provided with a guarded main latch. Standard (pullman, or other non-guarded) type latches (rim, vertical rod, or mortise device) lacking guard, shall not be acceptable.

    a. At hollow metal, wood doors or wide stile doors provide wide stile exit devices (with spacers as required) to clear raised trim as required by door details.
    b. Locate exit devices at vertical location on door per architect's instructions at those doors where multiple lites occur to offer horizontal lines as per architect's design intent. Exit devices on doors with center cross rail shall be mounted centerline in rail.
    c. Comply with requirements of BHMA A156.3, Grade 1.
    d. Style: Modern push-pad type, narrow stile or wide stile as scheduled. Where scheduled, provide security type exit device from either of the manufacturers listed. Standard exit devices utilizing Pullman type latches shall not be acceptable where security exit devices are scheduled. Only active case heads utilizing an interlocked guarded and main latch shall be acceptable.
    e. All exposed materials shall be architectural grade metals. Neither white metals, nor plastic shall be acceptable on any exposed surface.
    f. Outside trim: All lever trim at exit devices, except where indicated as rigid dummy trim, shall be furnished with either breakaway or clutch-type freewheeling levers for durability and longevity.
    g. Where cylinder only or where nightlatch is indicated, provide outside trim employing a cylinder and cylinder collar only. This function (ANSI F03) shall result in key retraction of latchbolt.
    h. All devices shall be supplied with Extra Heavy Duty Lever Release Trim. Trim shall have ramped (beveled) sides and a flush cylinder to resist abuse and extend the product life.
    i. Locate exit devices at vertical location on door per architect's instructions at those doors where multiple lites occur to offer horizontal lines as per architect's design intent.

3. Flush bolts: Lever-extension flush bolts complying with BHMA A156.16, Grade 1.

    a. Manual:

        1) Lower actuator centered 12 inches from door bottom; upper actuator centered 72 inches from door bottom. All flushbolts shall be furnished with stainless steel actuating fingers for durability.
        2) All flushbolts shall be furnished with dustproof strikes and mounting plates as required to secure to finished floor.

b. Automatic:

1) All automatic flushbolts shall operate and function efficiently and smoothly when door closers are adjusted to meet and comply with ADA and Barrier Free closing and opening forces. Units that require door closers to be excessively adjusted to operate are not acceptable.

4. Strikes: Provide strike for each latch bolt and lock bolt.

a. Finish to match other hardware on door.
b. Use wrought box strikes with curved lips unless otherwise indicated.
c. Open strike plates may be used on interior wood
d. In floors, use dustproof strikes unless threshold is supplied and strike hole shall be provided with clean and dimensionally correct bolthole.
e. At all pairs of doors requiring astragals, strikes shall be furnished such that lip of strike is flush with door edge and will not interfere with a flush astragal condition when active door is in a closed position, or astragal shall be coped around strike lip for proper operation of astragal.

2.6 LOCK CYLINDERS AND KEYING

A. Keying:

1. Keying shall be into a new master key system. Contractor may require temporary cores or temporary locks during construction phase for usage and lock-up. Furnish temporaries, as contractor requires.

2. Architectural Grade Locksets and cylinders: Provide products complying with requirements of the contract documents

B. Keys - Architectural:

1. All keys to be stamped “Do Not Duplicate” and key code number as set by the factory.
2. Provide 6 masterkeys, 4 copies each key change, 6 CMK & 10 each extra stamped *Do Not Duplicate* key blanks for owner's use. – Deliver all final keys and key blanks directly to owner’s representative.

2.7 DOOR CONTROL DEVICES

A. Manufacturers:

1. Provide products complying with requirements of the contract document. Acceptable products shall be as specifically listed herein by manufacturer’s number and series.
2. Wall and floor-mounted stops and holders: Provide products complying

with requirements of the contract documents and made by one of the following:

B. Closers - General: Provide metal, plastic, painted or plated door closers as schedule indicates.

1. Use closers of sizes recommended by manufacturer, unless a larger size is specified. All closer for this project to carry a minimum written “10 Year Warranty”. All closers shall be manufactured in the USA of domestic metals, and supplied with a 1 ½” diameter piston.
2. Size closer or adjust closer opening force to comply with applicable codes. Furnish barrier free compliant door closer at all interior doors, whether listed specifically in hardware sets or not. Furnish all brackets and drop plates required to affix door closers as scheduled according to specific door top rails and frame face dimensions, whether listed in hardware specification or not.
3. Provide door closer mounting brackets, arms, plates, and misc. equipment as necessary to mount all door closers inside room, or out of corridor at every instance where a door closer is specified. No door closers (nor parts, nor accessories of) shall be visible from corridor side unless architect has authorized specific and formal approval for that mounting application, and has clear understanding closer is visible through lite, and has approved such. Provide top jamb mounted units where hardware schedule lists closer functions that are not available in regular arm mounting configurations.

C. Surface-Mounted, Concealed Closers and auto operated low power closers:

1. Comply with requirements of BHMA A156.4, Grade 1. Provide the following features:

a. Warranty - Lifetime of body and 10 Year written warranty on parts on all closers.
b. Adjustable hydraulic back check and barrier free closers at all doors.
c. Style: Modern with cover.
d. Parallel arms: Provide for all closers; use larger size than normal.
e. Provide manual hold-open feature as specified.
f. Unitrol door closers - provide spring-loaded spring-stop, spring Cush or Unitrol arm where specified. Provide arm-mounting accessories as required to properly secure Unitrol arm 6190, 2022 or 6191 kits shall be furnished where Unitrol door closers - provide spring-loaded spring-stop, spring Cush or Unitrol arm where specified. Provide arm-mounting accessories as required too properly secure Unitrol arm. 6190, 2022 or 6191 kits shall be furnished where dimensions require. An alternative closer and overhead stop may be furnished in lieu of the Unitrol specified. Furnish closer as scheduled used in conjunction with Rixson #1 overhead stop where Unitrol type closer is scheduled and supplier desires an alternate substitution.
g. Finish: All door closers to be finished in metallic powder coated

paint finish, similar to metal hardware on same door. All covers screws and arms are to be plated to match adjacent hardware.

D. Wall/Floor-Mounted Stops/Holders: Comply with requirements of ANSI A156.16.

1. Resilient bumpers: Trimco 1229A silencers shall be furnished at all hollow metal and wood frames whether scheduled in hardware sets or not. Each single door to be supplied with three (3) each. Each double opening shall be furnished with two (2) each. Exceptions: Exterior doors and sound sealed doors.

2.8 ARCHITECTURAL DOOR TRIM

A. Manufacturers:

1. Architectural door trim: Provide products complying with requirements of the contract documents. Products submitted shall meet requirements as specified herein and shall be designated by manufacturer's number and series.

2.9 SEALS

A. Manufacturers:

1. Seals: Provide products complying with requirements of the contract document. Acceptable products shall be as specifically listed herein by manufacturer's number and series.

B. Seals:

1. At jambs and head: As scheduled.
2. At bottom: As scheduled.
3. Housing finish: as scheduled.
4. Silicon or neoprene as scheduled adhered with self-adhesive, or mechanically fastened, shall be UL fire listed and provided as scheduled. Provide as listed in schedule, door schedule, and floor plans and as is typical of the balance of scheduled hardware as indicated by and thus required by usage of rooms.

2.11 FINISHES

A. Finish on All Exposed Metal Items: All finishes must match finish as listed in the Hardware sets. Supply similar painted finish only at typical painted hardware materials.

B. Exceptions:

1. At all exterior, wet or moisture-laden areas use hinges of nonferrous base metal, whether scheduled herein or not. Where specified, use Stainless Steel. At all painted finishes at wet areas (pool, exercise and at exterior) use rust resistant paint (SRI) or paint must be powder coated type to

assure superior paint performance at these areas.

2. Items specified with the same finish shall match as closely as possible using standard manufactured products.
3. Provide finishes matching BHMA A156.18 designations.

PART 3 - EXECUTION

3.1 PREPARATION

A. Non-fire-rated wood doors and wood frames may be field-prepared for installation; all other types of doors and frames are to be factory- or shop-prepared.

3.2 INSTALLATION

A. Follow hardware manufacturer's recommendations and instructions.

B. Provide the services of an architectural hardware consultant to advise on proper installation, to inspect the finished work, and either to adjust or to instruct those who are adjusting.

C. Install surface-mounted items after substrates have been completely finished; install recessed items and recessed portions of items before finishes are applied and provide suitable, effective protection.

1. When surface-mounted items are installed before final finish, remove, store, and reinstall, or apply suitable effective protection.

D. Mount at heights specified in the Door and Hardware Institute's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

E. Install hardware in correct location, plumb and level.

F. Reinforce substrates as required for secure attachment and proper operation.

G. Thresholds: Apply continuous bead of sealant to all contact surfaces before installing.

3.3 ADJUSTMENT

A. It shall be the supplier's responsibility to be available to Installers and/or owner's representative to council and demonstrate proper hardware adjustment prior to job closeout. Supplier shall offer on-site instruction of all final adjustment if so required by the installers or owners representative. Final adjustment shall result in performance, function and operation, as manufacturer shall deem sufficient to have full warranty coverage for the time as specified herein. Project installers shall adjust each operable unit for correct function and smooth, free operation to manufacturer's required operational and functional qualitative level of performance. Readjust hardware not more than one week before substantial completion.

B. Adjust door closers to overcome air pressure produced by HVAC systems. If HAVC pressure, whether negative or positive, negates proper operation or function of any closing or latching device, or inhibits manufacturer's intended performance (in any manner), supplier shall inform the GC in writing that type of hardware cannot operate nor function as manufacturer has designed and tested due to HVAC condition.

3.4 INSTRUCTION OF OWNER'S PERSONNEL

A. Instruct the Owner's personnel in operation and maintenance of hardware, including finishes.

3.5 CLEANING

A. Clean hardware; clean other work soiled during hardware installation.

3.6 CONTRACT CLOSEOUT

A. Deliver all Bitting List, keys, and extra blanks to the Owner.

B. Contractor to furnish a binder, delivered to the owner or the owners rep, complete with:

1. Manufacturer's data for each different piece of hardware (Catalog sections).
2. One set of complete installation instructions of each piece of hardware furnished.
3. Most recent hardware schedule, complete with all changes.
4. Two complete set of Wiring diagrams (riser diagrams) per door, and door # with all supplied hardware shown.
5. Deliver complete Bitting list for all locks furnished on the project.
6. Provide all adjustment and maintenance tools recommended by hardware manufacturers.
7. Provide copy of one-year warranty for locks, five-year for exit devices and ten-year warranty for closers.

3.7 HARDWARE SETS

Refer to door schedule for number and location. Manufacturers as listed, or equivalent.

Hardware Set 100

3'-0" x 7'-0" Aluminum Door and Frame – LHR

1	ea	Exit Device	Adams Rite Assa Abloy 8600 Series Concealed vertical rod exit device with Cylinder Key	
1	ea	Pull	YKK AP Smart Series Pulls	Dark Bronze
1	ea	Door Closer	YKK AP Closer H-6104	Dark Bronze
1	ea	Hinge	Hager 780-057HD Continuous Hinge	Dark Bronze
1	ea	Threshold	YKK AP H-80201/8301	Alum
1	ea	Stop Strip	YKK AP	Alum
1	ea	Door Bot. Sweep	YKK AP Bottom Rail Weatherstrip with Gasket and Door Sweep	Black

Hardware Set 101

Single 3’-0” x 6’-8” Wood Door and HM Frame – RH

1	ea	Lockset	Falcon W301-Dane	US26D
3	ea	Hinge	Hager BB1191	US32D
3	ea	Silencers	Ives SR64	Rubber
1	ea	Threshold	Marble	-
1	ea	1" Projection Solid Brass Half Dome Style Floor Mounted Door Stop		

Hardware Set 102

Single 3’-0” x 6’-8” Wood Door and HM Frame – LH

1	ea	Lockset	Falcon W571-Dane	US26D
3	ea	Hinge	Hager BB1191	US32D
3	ea	Silencers	Ives SR64	Rubber
1	ea	1" Projection Solid Brass Half Dome Style Floor Mounted Door Stop		

Hardware Set 103

Single 3’-0” x 6’-8” Wood Door and HM Frame – RHR

1	ea	Lockset	Falcon T101S-Dane	US26D
3	ea	Hinge	Hager BB1191	US32D
3	ea	Silencers	Ives SR64	Rubber
1	ea	1" Projection Solid Brass Half Dome Style Floor Mounted Door Stop		

Hardware Set 104

Double 2’-4” x 6’-8” Wood Door and HM Frame – LHR, RHR

1	ea	Lockset	Falcon W12-Dane	US26D
1	ea	Ball Catch		
3	ea	Hinge	Hager BB1191	US32D
3	ea	Silencers	Ives SR64	Rubber

Hardware Set 105

Double 2’-4” x 6’-8” Wood Door and HM Frame – LHR, RHR

1	ea	Lockset	Falcon W12-Dane	US26D
1	ea	Ball Catch		
3	ea	Hinge	Hager BB1191	US32D
3	ea	Silencers	Ives SR64	Rubber

Hardware Set 106

Single 3’-0” x 6’-8” Wood Door and HM Frame – LHR

1	ea	Lockset	Falcon W561-Dane	US26D
3	ea	Hinge	Hager BB1191	US32D
3	ea	Silencers	Ives SR64	Rubber
1	ea	Closer	LCN1000	
1	ea	Threshold	Pemko 171a Saddle	Alum
1	ea	Sweep	Pemko 368	-
1	ea	1" Projection Solid Brass Half Dome Style Floor Mounted Door Stop		

Hardware Set 107

Single 3’-0” x 6’-8” Wood Door and HM Frame – LHR

1	ea	Lockset	Falcon W561-Dane	US26D
3	ea	Hinge	Hager BB1191	US32D
3	ea	Silencers	Ives SR64	Rubber
1	ea	1" Projection Solid Brass Half Dome Style Floor Mounted Door Stop		

Hardware Set 108

Single 3’-0” x 7’-0” FRP Door and Aluminum Frame – LHR

1	ea	Exit Device	Adams Rite 4591 Paddle	US26D
	ea	Deadlatch	Adams Rite 4510	-
1	ea	Recessed Pull	Special-Lite SL-86 Recessed	US32
1	ea	Door Closer	LCN 1000	-
1	ea	Hinge	Special-Lite SL-11 HD Continuous	Alum
1	ea	Weather Strip	Pemko HSS2000xS88GR	Silicone
1	ea	Threshold	Pemko 171a Saddle, 1842 APK	Alum

Hardware Set 109

Single 3’-0” x 7’-0” FRP Door and Aluminum Frame – RHR

1	ea	Entry Device	Trilogy ETBL Keypad Access ETDLS1G/26DV99	US26D
1	ea	Exit Device	Dormakaba Push Bar – 9000 Series	US26D
1	ea	Door Closer	LCN 1000	-
1	ea	Hinge	Special-Lite SL-11 HD Continuous	Alum
1	ea	Weather Strip	Pemko HSS2000xS88GR	Silicone
1	ea	Threshold	Pemko 171a Saddle, 1842 APK	Alum

Note: For garage doors, see door schedule and specification section: 083614 Overhead Sectional Steel Door

Lockset Key:

Panic Bar:	Spring loaded, horizontal bar mounted to push side of exit door. No operating entrance device on exterior of door.
Entrance Lockset:	Lever handle with keyed entrance from the exterior and push button lock on the interior.
Passage Lockset:	Lever handle with no locking mechanism on either side.
Storeroom Lockset:	Lever handle with keyed entrance from the exterior and no locking mechanism on the interior. Interior lever always free.
Double Cylinder:	Deadbolt cylinder with keyed entrance from both sides, no thumb turn.
Keyed Deadbolt:	Deadbolt cylinder with keyed entrance from one exterior and thumb turn on the interior.

END OF SECTION

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Steel frames.

B. RELATED SECTIONS

C. Section 09 90 00 - Painting and Coating.

1.2 REFERENCES

A. ANSI A115.IG - Installation Guide for Doors and Hardware

B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames.

C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.

D. ANSI A250.11, Recommended Erection Instructions for Steel Frames.

E. ASTM A 366/A 366M - Standard Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled.

F. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-coated (Galvannealed) by the Hot-Dip Process.

G. A 924 - Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot Dip Process

H. ASTM A 1008/A 1008M - 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

I. HMMA-820 TN03 - Guidelines for Glazing of Hollow Metal Transoms,Sidelights and Windows

1.3 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.
   3. Installation methods.

C. Shop Drawings: Include schedule identifying each unit, with door marks or numbers referencing drawings. Show layout, profiles, product components and anchorages.
   1. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement, to ensure doors and frames are properly prepared

and coordinated to receive hardware.

2. Indicate door elevations, internal reinforcement, closure method, and cutouts for glass lights and louvers.

D. Samples: 18 by 24 inches (457 by 610 mm) cut away sample door with provisions for lockset, hinge and corner section of frame.

E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum five years documented experience manufacturing products specified this Section.

B. Installer Qualifications: Minimum five years documented experience installing products specified this Section.

C. All products shall conform to the requirements of ANSI A250.8 Recommended Specifications for Standard Steel Doors and Frames".

E.

1. SDI-100 - Standard Steel Doors and Frames.
2. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder’s Hardware.
3. Handicapped: ANSI A117.1.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store doors vertically in a dry area, under a proper vented cover. Place on 4 inch (102 mm) high wood sills to prevent rust or damage. Provide 1/4-inch (6 mm) space between doors to promote air circulation.

C. Store frames in an upright position with heads uppermost under cover. Place on 4 inch (102 mm) high wood sills to prevent rust and damage. Store assembled frames five units maximum in a stack with 2 inch (51 mm) space between frames to promote air circulation.

D. Do not use non-vented plastic or canvas shelters to prevent rust or damage.

E. Should wrappers become wet, remove immediately.

1.6 SEQUENCING

A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.7 COORDINATION

A. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal cutouts and reinforcement for door hardware, electric devices and recessed items.

B. Coordinate Work with frame opening construction, door and hardware installation.

C. Sequence installation to accommodate required door hardware.

D. Verify field dimensions for factory assembled frames prior to fabrication.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Galaxy Metal Products, which is located at: 2960 Woodbridge Ave.; Edison, NJ 08837; Toll Free Tel: 800-294-8199; Email: request info (mceceri@galaxymetalproducts.com); Web: galaxymetalproducts.com

B. Requests for substitutions will be considered in accordance with provisions of Section 016000 – Material Manufacturer Substitution Policy.

C. Provide all steel frames from a single manufacturer.

2.2 DOOR FRAMES

A. General: Construct exterior/interior metal door frames to the following designs and gages;
   1. Interior KD Drywall Frames (Pressure Fit): cold rolled steel, ASTM A 1008/A 1008M.
      a. Thickness:
         1) 16 gage (1.3 mm).

   2. Include galvannealed components and internal reinforcements with galvannealed frames.

B. Steel Frames for Drywall:
   1. Profile:
      a. Profile: 2 inches (51 mm) face dimension, 1/2 inch (13 mm) backbend with 5/16 inch (8 mm) return, 5/8 inch (16 mm) high stop, types and throat dimensions indicated.
   2. Provide following reinforcement and accessories:
      a. Hinge preparation for 4-1/2 inches (114 mm) high, full mortise hinges, 0.134 inch (3.4 mm) or 0.180 inch (4.6 mm) leaf thickness.
      b. Strike preparation (single doors) for 4-7/8 inch (125 mm) universal strike; with plaster guard.
      c. Closer reinforcement: minimum 14 gage (1.7 mm) steel.
      d. Projection weld hinge and strike reinforcements to the door frame.
      e. Provide metal plaster guards for all mortised cutouts.
      f. Include galvannealed hardware reinforcements in all galvannealed

frames.

g. Silencers. Prepare frames to receive inserted type door silencers, 3 per strike jamb on single doors, and 2 per head for pair of doors. Stick-on silencers are not permitted.

3. Anchors: Locate adjustable anchors in each jamb 4 inches (102 mm) from the top of the door opening to hold frame in rigid alignment.
   a. Provide 14 ga. pressure anchors used in conjunction with base floor clips as required.
4. Fire Rating: Supply frame units bearing Labels for fire ratings indicated in Door Schedule for the locations indicated.
5. Finish: Factory prime finish.

2.3 ACCESSORIES

A. Anchors: Manufacturer's standard framing anchors, specified in manufacturer's printed installation instructions for project conditions.

B. Astragals for pairs of doors: Manufacturer's standard for labeled and non-labeled openings.

C. Plaster Guards: Same material as door frame, minimum 24 gage (0.5 mm) minimum; provide for all strike boxes.

D. Silencers: Resilient rubber, Inserted type, three per strike jamb for single openings and two per head for paired openings. Stick-on silencers shall not be permitted except on hollow metal framing systems.

E. Glazing: Specified in Section 08 81 00 - Architectural Glass.

2.4 FABRICATION

A. Steel Frames:
   1. Three-piece knock-down frames: Head and jamb intersecting corners die-cut, mitered at 45 degrees, with locking tabs for rigid connection when assembled.
   2. Provide cutouts and reinforcements required for electrical and security components specified elsewhere in this specification.
   3. Prepare doors and frames to receive mortised and concealed finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware.

2.5 FINISHES

A. Chemical Treatment: Treat steel surfaces to promote paint adhesion.

B. Factory Prime Finish: Meet requirements of ANSI A250.10.

C. Steel Sheet: Galvanized to ASTM A525 G60 (exterior doors only).

D. Field Finish: Paint in field.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify that substrate conditions are acceptable for installation of doors and frames in accordance with manufacturer's installation instructions and technical bulletins.

C. Verify door frame openings are installed plumb, true, and level.

D. Select fasteners of adequate type, number, and quality to perform intended functions.

E. 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 and with ANSI/SDI-100.

B. Install frames plumb, level, rigid and in true alignment in accordance with ANSI A250.11, "Recommended Erection Instructions for Steel Frames" and ANSI A115.IG, "Installation Guide for Doors and Hardware".

C. All frames other than slip-on types shall be fastened to the adjacent structure to retain their position and stability. Drywall slip-on frames shall be installed in prepared wall openings, and shall use pressure type and sill anchors to maintain stability.

D. Where grouting is required in masonry installations, frames shall be braced or fastened to prevent the pressure of the grout from deforming the frame members. Grout shall be mixed to provide a 4 inch (102 mm) maximum slump and hand troweled into place. Grout mixed to a thin "pumpable" consistency shall not be used.

E. Install fire-rated doors and frames in accordance with NFPA 80 and local code authority requirements.

F. Install doors to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Adjust to maintain perimeter clearances as required. Shim as needed to assure the proper clearances are achieved.

G. Glaze and seal exterior transom, sidelight and window frames in accordance with HMMA-820 TN03.

H. Install hardware as specified in Section 08 71 53 - Security Door Hardware in accordance with the hardware manufacturer's recommendations and templates.

ANSI A115.IG, "Installation Guide for Doors and Hardware" shall be consulted for other pertinent information.

3.4 CLEARANCES

A. Clearance between the door and frame head and jambs for both single swing and pairs of doors shall be 1/8 inch (3.2 mm).

B. Clearance between the meeting edges of pairs of doors shall be 3/16 inch plus or minus 1/16 inch (5 mm plus or minus 1.6 mm). For fire rated applications, the clearance between the meeting edges of pairs of doors shall be 1/8 inch plus or minus 1/16 inch (3.2 mm plus or minus 1.6 mm).

C. Bottom clearance shall be 3/4 inch (19 mm) (Standard).

D. The clearance between the face of the door and door stop shall be 1/16 inch to 1/8 inch (1.6 mm plus or minus 3.2 mm).

E. All clearances shall be, unless otherwise specified, subject to a tolerance of plus or minus 1/32 inch (.4 mm).

3.5 ADJUSTING AND CLEANING

A. Adjust doors for free swing without binding.

B. Adjust hinge sets, locksets, and other hardware. Lubricate using a suitable lubricant compatible with door and frame coatings.

C. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.

D. Remove from project site and legally dispose of construction debris associated with this work.

3.6 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

COMMERCIAL WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior standard wood veneer flush wood doors.
2. Interior painted flush wood doors.

B. Related Requirements:

1. Section 081110: Hollow metal frames for wood doors.
2. Section 080671: Door hardware.
3. Section 099123: Site painting.

1.2 PREINSTALLATION MEETINGS

A. Conduct pre-installation meeting at Project site.

B. Discussion Topics:

1. Delivery, storage, and handling.
2. Coordination with hardware installers.
3. Protection of installed doors.

1.3 ACTION SUBMITTALS

A. Product Data: Each type of door and finish.

1. Core and edge construction.
2. Glazed openings.
3. Finishes.

B. Shop Drawings and Schedule:

1. Use same unit designations used in Contract Documents.
2. Hardware preparation.

3. Glazed openings.

4. Louvers.

C. Samples for Selection:

1. Available standard stain colors and gloss options.

2. Available standard molding profiles for glazed openings.

D. Samples for Verification:

1. Transparent Finish Doors: Each required veneer species and factory finish; minimum 8 by 10 inches [200 by 250 mm] corner unit showing construction and finish.

2. Light Opening Moldings: Minimum 6 inches [150 mm] long, for each material, type, and finish required.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

B. Manufacturer warranties transferrable to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Package factory-finished doors individually in manufacturer's standard plastic bags, stretch wrap, or cardboard cartons.

B. Store doors inside building in clean, dry location.

C. Mark each door on top rail with opening number used on Shop Drawings.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity at occupancy levels during remainder of construction period.

1.7 MANUFACTURER WARRANTIES

A. Standard manufacturer warranties.

1. Failures include, but are not limited to, the following:
    a. Warping (bow, cup, or twist) more than 1/4 inch (6 mm) in 42-by-84-inch (1065-by-2130-mm) section.

b. Telegraphing of core construction in face veneers exceeding 0.01 inch in 3-inch (0.25 mm in 76-mm) span.

2. Solid Core Doors: Limited lifetime warranty.

3. Hollow Core Doors: Limited one year.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Products of Cendura™ Series | Mohawk by Masonite Architectural are specified to indicate requirements for quality and appearance.

B. Source Control: Supply all wood doors from a single manufacturer.

2.2 MANUFACTURING STANDARD

A. Interior Wood Doors: Window & Door Manufacturers Association publication ANSI/WDMA I.S. 1A “Industry Standard for Interior Architectural Wood Flush Doors”.

2.3 SUSTAINABILITY REQUIREMENTS

A. Certified Wood: "FSC Pure" per FSC STD-01-001 and FSC STD 40-004.

B. Adhesives: Meeting testing and product requirements of California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Composite Wood Products: Manufactured with ultra-low-emitting formaldehyde resins as defined in California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or with no added formaldehyde.

2.4 INTERIOR SOLID CORE STANDARD VENEER FLUSH WOOD DOORS FOR TRANSPARENT FINISH

A. Basis of Design: Cendura™ Series | Mohawk by Masonite Architectural
B. Solid Core Standard Veneer Flush Wood Doors:

1. WDMA Quality Standard: Custom.

2. WDMA Performance Level: Heavy Duty.

3. Faces:
   a. Veneer Grade: A.

b. Veneer Species: Natural Birch, White Birch, White Maple, Natural Maple.
c. Veneer Cut: Rotary

d. Veneer Face Match: Running match.

4. Pair Match: Provide for doors hung in same opening.

5. Vertical Edges: Mill option softwood or low-density hardwood.

6. Horizontal Edges: Structural composite lumber.

7. Core: Wood-based particleboard.

8. Construction: Five plies. Stiles and rails are bonded to core, and then entire unit is abrasive planed before veneering.

9. Thickness: 1-3/8 inch.

C. Solid Core Standard Veneer Flush Wood Doors with Glazed Lites:

1. Match appearance grade and applicable construction and performance requirements of other standard veneer flush solid core wood doors.

2. Factory Glazing: Refer to Section 088100 "Architectural Glass" for glass view panels in flush wood doors. Factory install glass as required. Fill glazing bead nail holes in factory finished doors.

3. Wood Glazing Accessories: Solid wood of same species as face veneer in standard profile selected by Architect.

a. Bead Profile: Beveled

2.5 FABRICATION

A. Door Pairs:

1. Veneer Matching: Pair match.

B. Factory Fitting: Fit to frame openings with clearances specified in WDMA I.S. 1A.
1. Undercut: Maximum 3/8 inch (10 mm) above thresholds.

2. Fire-Rated Doors: Comply with NFPA 80.

C. Factory Machining: Machine doors for hardware that is not surface applied.

1. Verify dimensions for hardware mortises in metal frames before machining.

D. Openings:

1. Cut and trim openings and install glazing at factory.

2. Cut openings and install louvers at factory.

E. Contractor Option: Doors supplied with wood frames may have hardware installed at factory.

2.6 FINISHES

A. Finish Grade: Match grade of door.

B. Transparent: WDMA TR-8, UV-Cured Acrylated Polyester/Urethane.

1. Staining: Standard color selected by Owner.

2. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that door frames are plumb, square, and accurate size.

B. Inspect each door before installation for damage and defects per WDMA Section F-6.

3.2 INSTALLATION

A. Hardware installation is specified in Section 080671 – Door Hardware.

B. Reference Standards:

1. Wood Doors: WDMA I.S. 1A.

C. Align doors with uniform vertical and top edge clearance.

3.3 REPAIR

A. Repair of damage or defects is subject to Architect’s acceptance, including removal of soiling.

B. Provide new replacement doors for doors that cannot be satisfactorily repaired.

3.4 PROTECTING AND CLEANING

A. Protect installed doors from damage and soiling.

B. Clean doors shortly before inspection for Substantial Completion.

END OF SECTION

OVERHEAD SECTIONAL STEEL DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Overhead Sectional Steel Doors

1.2 RELATED SECTIONS

A. Section 087113 – Commercial Door Operators

B. Section 099123 - Painting

C. Division 26 – Electrical

1.3 REFERENCES

A. ANSI/DASMA 102-American National Standard Specifications for Sectional Overhead Type Doors.

1.4 SUBMITTALS

A. Submit under provisions of Section 013000

B. Shop Drawings: Show in detail opening and clearance dimensions. Include elevations of sections and track. Include section finish, gauge and non standard options. Show detail of jamb material and connections.

C. Verification Samples: Two samples, minimum 6 inches square, representing actual product selected.

D. Operation and Maintenance data.

1.5 QUALITY ASSSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products in this section with minimum five years experience.

B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

1.6 DELIVERY, STORAGE AND HANDLING

A. Store products in manufacturer’s unopened packaging until installation.

B. Store materials in a dry, weathertight location.

PART 2 PRODUCTS

2.1 MANUFACTURERS

Acceptable Manufacturers: General Doors Corporation, which is located at One Monroe St.; Bristol, PA 19007; Tel: 215-788-9277; Fax 215-788-9450; Email: sales@general-doors.com; Web: www.general-doors.com.

2.2 INSULATED STEEL SECTIONAL OVERHEAD DOORS

A. General Doors Corporation Model Weather Breaker 175.

1. Door Assembly: Steel/Polyurethane/Steel sandwich panel construction. Doors comply with:

a. ANSI/DASMA 102 – American National Standard Specifications for Sectional Overhead Type Doors.

2. Door Model: Weather Breaker 175

3. Panel Thickness: 1.75 inches

4. Exterior Surface: Ribbed pattern with a non-repeating random stucco surface texture.

5. Exterior Steel: Pre-Painted 0.019 inches, hot dipped galvanized. Two coat baked on paint system, enamel primer and polyester finish coat.

6. Interior Surface: Rib pattern with a non-repeating random stucco surface texture.

7. Interior Steel: Pre-painted 0.016 inches, hot dipped galvanized.

8. End Stiles:

a. Single end caps: 16 gauge galvanized

9. Torsion Springs:

e. 100,000 cycle

i. mounted on 1’’ tube (14ga. min)

10. Insulation: Foamed in place CFC-free and HCFC-free polyurethane, fully encapsulated.

11. Thermal Value: R=16.4, U=0.061

12. Windows:

a. sealed glass 24 inches by 12 inches

13. Exterior Colors:

    a. manufacturer’s standard white

14. Wind Load Design:

    a. 20psf/105mph

15. Track and Operating Hardware:

    a. standard lift

16. Hardware: Heavy duty galvanized hinges and fixtures. Floating ball bearing rollers with hardened steel races. Galvanized aircraft cables, 7x19 construction, minimum 5:1 safety factor.

17. Lock:

    a. inside lock, spring activated

18. Track:

    a. 3’’ wide, roll formed galvanized

19. Seals:

    a. Vinyl weatherseal full width of door, bottom and top sections.
    b. Standard continuous, replaceable dual seals between sections.

2.3 FABRICATION

A. Check site dimensions prior to fabrication

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify opening dimensions, jambs plumb, level and square.

3.2 INSTALLATION

A. Install assembly in accordance with manufacturer’s instructions.

B. Assemble work plumb, true, square, straight, level and accurate as per drawings

C. Position jamb weather seal to contact door when closed.

3.4 ADJUSTING

A. Adjust door to ensure smooth operation through open and close cycle. Use manufacturer approved lubricant on all bearings.

3.5 DEMONSTRATION

A. Demonstrate proper operation to user.

END OF SECTION

ALUMINUM FRAMED ENTRANCES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Aluminum Swing Doors, including:

1. YKK AP Series 20D Narrow Stile Swing Entrances.
2. YKK AP Series 35D Medium Stile Swing Entrances.
3. YKK AP Series 50D Wide Stile Swing Entrances.

B. Related Sections:

1. Glass and Glazing: Refer to Division 8 Glass and Glazing Section for glass and glazing requirements.

2. Single Source Requirement: All products listed below shall be by the same manufacturer.

a. Section 08 32 13 Sliding Aluminum - Framed Glass Doors.
b. Section 08 51 13 Aluminum Windows.
c. Section 08 44 13 Glazed Aluminum Curtain Walls.
d. Section 08 44 33 Sloped Glazing Assemblies.

1.02 SYSTEM PERFORMANCE DESCRIPTION

A. Performance Requirements: Provide aluminum swing doors that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with test methods indicated.

1. Air Infiltration (Single Acting Butt Hinges or Offset Pivots): Air infiltration shall be tested in accordance with ASTM E 283-91 at static pressure of 1.57 PSF (75 Pa). Infiltration shall not exceed the following:

a. For 50D Single Doors: 0.50 CFM/FT² of total door and frame area.

2. Structural: Door corner structural strength shall be tested per YKK AP's dual moment test procedure and certified by an independent testing laboratory to ensure corner integrity and weld compliance. Certified test procedures and results are available upon request.

3. Uniform Load Test:
e. For 50D Single Doors: ±60 psf.

4. Forced Entry Resistance: 300 lbs. satisfactory.

1.03 PROJECT CONDITIONS / SITE CONDITIONS

A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

1.04 SUBMITTALS

A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."

B. Product Data: Submit product data for each entrance series specified.

C. Substitutions: Whenever substitute products are to be considered, supporting technical data, samples, and test reports must be submitted ten (10) working days prior to bid date in order to make a valid comparison.

D. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, and finish colors.

E. Samples: Submit verification samples for colors. Minimum 2-1/2 inch by 3 inch (61 mm by 73 mm) samples on actual aluminum substrates indicating full color range expected in installed system.

F. Quality Assurance / Control Submittals:

1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
2. Installer Qualification Data: Submit installer qualification data.

G. Closeout Submittals:

1. Warranty: Submit executed warranty documents specified herein, endorsed by YKK AP authorized official and installer.
2. Project Record Documents: Submit project record documents, including operation and maintenance data for installed materials in accordance with Division 1 Project Closeout (Project Record Documents) Section.

    a. Maintenance Data: Maintenance procedures for care and cleaning of entrance systems.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the

installation of work similar to that required for this project. If requested by Owner, submit reference list of completed projects.

2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction process.

B. Mock-Ups (Field Constructed): Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, and workmanship standard.

1. Mock-Up Size:

2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.

3. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

C. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.06 WARRANTY

A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by an authorized company official.

1. Warranty Period: Manufacturer’s one (1) year standard warranty commencing on the substantial date of completion for the project provided that the warranty, in no event, shall start later than six (6) months from the date of shipment by YKK AP America Inc.

EDITOR NOTE: Longer warranty periods are available at additional cost.

PART 2 PRODUCTS

2.01 MANUFACTURERS (Acceptable Manufacturers/Products)

A. Acceptable Manufacturers: YKK AP America Inc.
270 Riverside Parkway, Suite 100
Austell, GA 30168
Telephone: (678) 838-6000; Fax: (678) 838-6001

1. Wide Stile Swing Doors: YKK AP Series 50D Wide Stile Swing Doors.

a. Description: 5" (127.0 mm) Door Stile

2. Corner Construction: Fabricate door corners joined by concealed reinforcement secured with screws and sigma deep penetration welding.

3. Glazing Stops: Manufacturer's standard snap-in glazing stops with EPDM glazing gaskets to prevent water infiltration.

4. Weather-stripping: Manufacturer's standard pile type in replaceable rabbets for stiles; manufacturer's standard EPDM bulb type in door frames.

5. Hardware: Manufacturer's standard as selected by Architect.

2.02 MATERIALS

A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy.

B. Aluminum Sheet:

1. Anodized Finish: ASTM B 209 (ASTM B 209M), 5005-H14 Aluminum Alloy, 0.050” (1.27 mm) minimum thickness.

2.03 ACCESSORIES

A. Manufacturer's Standard Accessories:

1. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners, countersunk, finish to match aluminum color.

2. Sealant: Non-skinning type, AAMA 803.3.

3. Glazing: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; Glazing gaskets in accordance with ASTM C 864.

2.04 RELATED MATERIALS (Specified In Other Sections)

A. Glass: Refer to Division 8 Glass and Glazing Section for glass materials.

2.05 FABRICATION

A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly secure, and sealed in accordance with manufacturer's recommendations.

1. Hardware: Drill and cut to template for hardware. Reinforce frames and door stiles to receive hardware in accordance with manufacturer's recommendations.

2. Welding: Conceal welds on aluminum members in accordance with AWS recommendations or methods recommended by manufacturer. Members

showing welding bloom or discoloration on finish or material distortion will be rejected.

2.06 FINISHES AND COLORS

A. YKK AP America Anodized Plus® Finish:

CODE	DESCRIPTION
YS1N*	Clear Anodized Plus®
YH3N	Champagne Anodized Plus®
YB1N	Medium Bronze Anodized Plus®
YB5N*	Dark Bronze Anodized Plus®
YK1N*	Black Anodized Plus®
YW3N	White Anodized Plus®
M	Mill Finish

* Indicates standard finish usually carried as inventory.
Anodized Plus® is an advanced sealing technology that completely seals the anodic film yielding superior durability
(See AAMA 612).

B. Anodized Finishing: Prepare aluminum surfaces for specified finish; apply shop finish in accordance with the following:

1. Anodic Coating: Electrolytic color coating followed by an organic seal applied in accordance with the requirements of AAMA 612-02. Aluminum extrusions shall be produced from quality controlled billets meeting AA-6063-T5.

   a. Exposed Surfaces shall be free of scratches and other serious blemishes.

   b. Extrusions shall be given a caustic etch followed by an anodic oxide treatment and then sealed with an organic coating applied with an electrodeposition process.

   c. The anodized coating shall comply with all of the requirements of AAMA 612-02: Voluntary Specifications, Performance Requirements and Test Procedures for Combined Coatings of Anodic Oxide and Transparent Organic Coatings on Architectural Aluminum. Testing shall demonstrate the ability of the finish to resist damage from mortar, salt spray, and chemicals commonly found on construction sites, and to resist the loss of color and gloss.

   d. Overall coating thickness for finishes shall be a minimum of 0.7 mils.

D. Finishes Testing:

1. Apply 0.5% solution NaOh, sodium hydroxide, to small area of finished sample area; leave in place for sixty minutes; lightly wipe off NaOh; Do not clean area further.

2. Submit samples with test area noted on each sample.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS / RECOMMENDATIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, installation instructions, and product carton instructions. The latest installation instructions are available at www.ykkap.com.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions.

1. Verify location of preset anchors, perimeter fasteners, and block-outs are in accordance with shop drawings.

3.03 PREPARATION

A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

1. Aluminum Surface Protection: Protect aluminum surfaces from contact with lime, mortar, cement, acids, and other harmful contaminants.

3.04 INSTALLATION

A. General: Install manufacturer's system in accordance with shop drawings, and within specified tolerances.

1. Protect aluminum members in contact with masonry, steel, concrete, or dissimilar materials using nylon pads or bituminous coating.

2. Shim and brace aluminum system before anchoring to structure.

3.05 FIELD QUALITY CONTROL

A. Manufacturer’s Field Services: Upon request, provide manufacturer’s field service consisting of site visit for inspection of product installation in accordance with manufacturer’s instructions.

3.06 ADJUSTING AND CLEANING

A. Adjusting: Adjust swing doors for operation in accordance with manufacturer's recommendations.

B. Cleaning: The General Contractor shall clean installed products in accordance with manufacturer's instructions prior to owner's acceptance, and remove construction debris from project site. Legally dispose of debris.

C. Protection: The General Contractor shall protect the installed product's finish surfaces from damage during construction.

END OF SECTION

COMMERCIAL DOOR OPERATORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Overhead Sectional Door Operators.

1.2 RELATED SECTIONS

A. Section 083614 – Overhead Sectional Steel Door.

B. Section 099123 - Painting.

C. Division 26 - Electrical.

1.3 REFERENCES

A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

B. NEMA ICS 6 - Enclosures for Industrial Controls and Systems.

C. NEMA MG 1 - Motors and Generators.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

B. Electric Motors shall be alternating-current squirrel-cage motors conforming to NEMA MG 1.

C. Fire Door Operators: Provide with Factory Mutual approval and complying to and listed in UL Directory.

D. Explosion-proof Electric Motors shall be UL and CSA listed for hazardous location use in areas classified as Class I, Division I, Group D, T2C and Class II, Division I, Groups F and G, T2C.

E. Explosion-proof Operators: Provide with Factory Mutual approval.

F. Wiring Connections: Requirements for electrical characteristics.
   1. 230 volts, 60 Hz single phase or three phase.

1.5 SUBMITTALS

A. Submit under provisions of Section 013000 – Submittal Procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Details of construction and fabrication.

4. Installation methods.

C. Shop Drawings: Include detailed plans, elevations, details of framing members, and required clearances and accessories. Include relationship with adjacent construction.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified with minimum of five years documented experience.

B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Install in areas designated by Architect.
2. Do not proceed with remaining work until workmanship and installation is approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

A. Provide operators with a 2 year or 20,000 cycle limited warranty on motor and parts.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Napoleon/Lynx, 613 Industrial Road, Carlstadt, NJ 07072. Tel. Toll Free: (800) 234-5969. Web Site: www.lynx-nsw.com.

B. Requests for substitutions will be considered in accordance with provisions of

Section 016000 – Material Manufacturer Substitution Policy.

2.2 OVERHEAD SECTIONAL DOOR OPERATORS

A. Heavy Duty Sectional Door Operator: Model HDCJ Jackshaft Operator:

1. Application:
   a. Standard Lift Sectional Door.

2. Electric Motor: UL listed.
   a. Rating:
      1) 1/2 horsepower single phase or three phase with automatic thermal reset overload.

   b. Motor frame comply with:
      1) NEMA 48 for 1/2 hp single phase.
      2) NEMA 56 for 1/2 hp three phase.

   c. Construction:
      1) Totally Enclosed Non Ventilated - TENV construction.

   d. Reduction: Primary reduction is worm gear in oil bath. Secondary reduction is by chain and sprocket on trolley model only.

   e. Duty cycle: Accommodate heavy usage, up to 60 cycles per hour under a large constant load.
      1) Brake: DC Disc type with selectable Progressive Braking for smooth stopping.
      2) Clutch: Adjustable torque-limiter type. Standard on trolley models (optional on hoist models).
      3) Limit System: Limit Lock limit system, magnetic type providing absolute positioning with push to set and remote setting capabilities. Limit System shall remain synchronized with the door during manual operation and supply power interruptions.

3. Control System: Microprocessor based with relay motor controls on a single board. System incorporates a 16 character Liquid Crystal Display (LCD) to display the system status. System shall include the following:
   a. Acceptable Manufacturer: Lynx LX 100 Programmable Interface complete with three (3) two (2) button remotes and two (2) vehicle sensors.
   b. Capable of monitoring and reporting on a variety of operating conditions, including: Current operating status, Current command status, Motor movement status, Current error status (if applicable), Hoist Interlock status (if applicable), External Interlock status, and 24VDC status.
   c. A delay-on-reverse operating protocol.
   d. Maximum run timers in both directions of travel that limit motor run time in the event a clutch slips or some other problem occurs.
   e. Provisions for the connection of a 2-wire monitored photo-eye or a 2-wire monitored edge sensor, as well as non-monitored 2-wire sensing edges, photo-eyes or other entrapment protection devices.

f. Control action will be constant contact close until a monitored entrapment device is installed, allowing for selection of momentary contact.
g. Provisions for connection of single and/or 3-button control stations.
h. Provisions for connection of an external 3-wire radio controls and related control devices.
i. On board open, close and stop control keys for local operation.
j. Trolley operators with an inherent secondary reversal system.
k. CodeDodger radio receiver that is dual frequency cycling at 315 Mhz and 390 Mhz capable of storing 250 single button and/or 250 Open-Close-Stop transmitters with the ability to add and/or delete transmitters individually, identify and store activating transmitter IDs.

4. Mounting:
   a. Sectional Steel Doors:
      1) Jackshaft/Hoist that is side or center mounted with:
         a) Chain/sprocket coupling to door.

5. Release:
   a. Release shall be a pull and hold type mechanism with single cable operation and an integrated interlock switch on hoist units.

6. Hoist: Chain hoist consists of chain pocket wheel, chain guard and smooth hand chain on hoist units.

7. Entrapment Protection:
   a. Control system shall have provisions to connect monitored entrapment protection devices such as monitored electric sensing edge, or monitored photo-eye and to provide constant contact close control operation in lieu of such devices.

8. Secondary Reversal:
   a. Control system designed to accept an optional non-monitored external reversing device.

9. Control accessories:
   a. Operator Controls:
      1) Push-button operated control stations with open, close, and stop buttons.
      2) Controls for interior location.
      3) Controls surface mounted.

   b. Special Operation:
      1) Vehicle detector operation.
      2) Radio control operation.
      3) OHD monitored photo-eyes.
      4) Commercial photo-eyes.
      5) Timer Close Module for unattended timed door closing. Auxiliary control inputs, safety inputs, timer hold input and automatic door closing feature with selectable time delay. Safety inputs can be configured using on board keypad.
      6) Commercial light package.

7) Auxiliary Output Module for up, down, and mid-stop limit status via several auxiliary sets of dry contacts that are microprocessor controlled. ADA compliant outputs that activate when door is moving up, down, or both directions and can be configured using the on board keypad.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify door sizes, configuration, tolerances and conditions are acceptable.

B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use anchorage devices to securely fasten assembly without distortion or stress.

C. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

D. Coordinate installation of electrical service with Division 26 - Electrical. Complete wiring from disconnect to unit components.

3.4 ADJUSTING

A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Clean components using non-abrasive materials and methods recommended by manufacturer.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

ARCHITECTURAL GLASS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. High performance glass of the following types:

2. Low-e insulating glass.
4. Reflective low-e insulating glass.
5. Monolithic float glass.

1.2 RELATED SECTIONS

A. Section 084113 – Aluminum Franced Entrances: Exterior Entrances.

1.3 REFERENCES

A. ANSI Z97.1 - American National Standard for Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.

B. ASCE 7 - "Minimum Design Loads for Buildings and Other Structures".

C. ASTM International (ASTM):

1. ASTM C 162 - Standard Terminology of Glass and Glass Products.
2. ASTM C 1036 - Standard Specification for Flat Glass.
3. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass -- Kind HS, Kind FT Coated and Uncoated Glass.
4. ASTM C 1172 - Standard Specification for Laminated Architectural Flat Glass.
5. ASTM C 1376 - Standard Specification for Pyrolitic and Vacuum Deposition Coatings on Flat Glass.
6. ASTM E 2188 - Standard Test Method for Insulating Glass Unit Performance.
7. ASTM E 2189 - Standard Test Method for Testing Resistance to Fogging in Insulating Glass Units.
8. ASTM E 2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

1.4 DEFINITIONS

A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

C. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or other specified gas.

D. Sealed Insulating Glass Unit Surface Designations:

1. Surface 1 - Exterior surface of the outer glass lite.
2. Surface 2 - Interspace surface of the outer glass lite.
3. Surface 3 - Interspace surface of the inner glass lite.
4. Surface 4 - Interior surface of the inner glass lite.

1.5 PERFORMANCE REQUIREMENTS

A. General: Provide glass capable of withstanding thermal movement and wind and impact loads (where applicable) as specified in paragraph B following.

B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings.

1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:

a. Design Wind Loads: Determine design wind loads applicable to the Project according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.

C. Thermal Movements: Provide glazing that allows for thermal movements resulting from ambient and surface temperatures changes acting on glass framing members and glazing components.

D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites 1/4 inch (6.0 mm) thick.
2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
3. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for the following methodologies:

a. U-Factors: NFRC 100 expressed as Btu/ sq. ft. per h per degree F.
b. Solar Heat Gain Coefficient: NFRC 200.
c. Solar Optical Properties: NFRC 300.

1.6 SUBMITTALS

A. Submit under provisions of Section 013000.

B. Product Data: For each glass product and glazing material indicated.

C. Verification Samples: For the following products, in the form of 12 inch (305 mm) square samples for insulating glass units.

D. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.

E. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.

1. For solar-control low-e-coated glass, provide documentation demonstrating that manufacturer of coated glass is certified by coating manufacturer.

F. Qualification Data: For installers.

G. Product Test Reports: For each of the following types of glazing products.

1. Tinted float glass.
2. Coated float glass.
3. Insulating glass.

H. Warranties: Special warranties specified in this Section.

1.7 QUALITY ASSURANCE

A. Sustainable Design Certification: Glass shall be Cradle to Cradle Certified, minimum Level, Cradle to Cradle Innovation Institute.

B. Fabricator Qualifications: Vitro Certified Fabricator Network, as acceptable to the manufacturer.

C. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under the National Glass Association Glazier Certification Program as Level-2 (Senior Glaziers) or Level-3 (Master Glaziers).

D. Source Limitations for Glass: Obtain the following through one source from a single manufacturer for each glass type: Clear float glass, coated float glass and insulating glass.

E. Glass Product Testing: Obtain glass test results for product test reports in "Submittals" Article from a qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

F. Glazing Publications: Comply with published recommendations of glass product manufacturers and industry organizations, including but not limited to those

below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."
2. GANA Publications: “Laminated Glazing Reference Manual”; “Glazing Manual.”
3. AAMA: “Sloped Glazing Guidelines.”
4. IGMA: “Guidelines for Sloped Glazing.”

G. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the following testing and inspecting agency:

1. Insulating Glass Certification Council.
2. Associated Laboratories, Inc.
3. Insulating Glass Manufacturers Alliance.

H. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, Insulating Glass Manufacturers Alliance ANSI Z97.1.

1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of the Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.
2. Lites more than 9 sq ft (0.84 sq m) in area are required to be Category II materials.
3. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2 articles for glazing lites more than 9 sf (0.84 sq m) in area, provide glazing products that comply with Category II materials, and for lites 9 sf (0.84 sq m) or less in area, provide glazing products that comply with Category I or II materials.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. For insulating-glass units that will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written recommendations for venting and sealing to avoid hermetic seal ruptures.

1.9 WARRANTY

A. Manufacturer's Warranty for Coated-Glass Products: Manufacturer's standard form, made out to the glass fabricator in which the coated glass manufacturer agrees to replace coated glass units that deteriorates during normal use within the specified warranty period. Deterioration of the coated glass is defined as peeling and/or cracking, or discoloration that is not attributed to glass breakage,

seal failure, improper installation, or cleaning and maintenance that is contrary to the manufacturer’s written instructions.

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

B. Manufacturer's Warranty on Insulating Glass: Manufacturer's standard form in which the insulating glass unit manufacturer agrees to replace insulating-glass units that deteriorate during normal use within the specified warranty period. Deterioration of insulating glass units is defined as an obstruction of vision by dust, moisture, or a film on the interior surfaces of the glass caused by a failure of the hermetic seal that is not attributed to glass breakage, improper installation, or cleaning and maintenance that is contrary to the manufacturer’s written instructions.

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

C. Manufacturer’s Warranty on Laminated Glass: Manufacturer’s standard form in which the laminated glass manufacturer agrees to replace laminated glass units that deteriorate during normal use within the specified warranty period. Deterioration of laminated glass is defined as defects, such as discoloration, edge separation, or blemishes exceeding those allowed by ASTM C 1172 that are not attributed to glass breakage, improper installation, or cleaning and maintenance that is contrary to the manufacturer’s written instructions.

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

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Vitro Architectural Glass; Glass Technology Center, 400 Guys Run Rd., Pittsburgh, PA 15024. ASD. Toll Free Tel: (800) 887-6457. Fax: (800) 367-2986. Web: http://www.vitroglazings.com.

B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 GLASS PRODUCTS

A. Annealed Float Glass: ASTM C 1036, Type I (transparent flat glass), Quality-Q3; of class indicated.

B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
2. Provide Kind HS (heat-strengthened) float glass in place of annealed float glass where needed to resist thermal stresses induced by differential

shading of individual glass lites and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.

3. For uncoated glass, comply with requirements for Condition A.
4. For coated vision glass, comply with requirements for Condition C (other uncoated glass).
5. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-strengthened) float glass where safety glass is indicated or required.

E. Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article and in Part 2 "Insulating-Glass Units" Article.

1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.
2. Provide Kind FT (fully tempered) glass lites where safety glass is indicated or required.
3. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
4. Sealing System: Comply with requirements in Section 07920 - Joint Sealants. Dual seal, with primary and secondary sealants of polyisobutylene and silicone.
5. Spacer Specifications: Manufacturer's standard spacer material and construction complying with the following requirements:

    a. Spacer Material: Aluminum with mill or clear anodic finish.
    b. Desiccant: Molecular sieve or silica gel, or blend of both.
    c. Corner Construction: Manufacturer's standard corner construction.

2.3 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

2.4 GLASS SCHEDULE, INSULATING GLASS

A. Type: Low-E Tinted Insulating Glass - Light-gray, ultra-neutral low-reflective exterior appearance.

1. Solarban 60 (2) Optigray + Clear by Vitro Architectural Glass.
2. Performance Values: VLT 50 percent; SHGC 0.30; shading coefficient 0.35; exterior reflectance 8 percent; U-value winter 0.29; U-value summer 0.27.

3. Insulating Glass Unit Construction: 1/4 inch (6 mm) Optigray glass, Solarban 60 solar control (sputtered) on second surface (2) + 1/2 inch (13 mm) air space + 1/4 inch (6 mm) Clear glass.

2.5 GLASS SCHEDULE, MONOLITHIC GLASS

A. Type: Uncoated Ultra-Clear Float Glass. Outdoor Appearance: Ultra-clear.

1. Clear Color: Starphire by Vitro Architectural Glass.
2. Performance Values for 1/4 inch (6 mm) Glass:
   a. VLT: 91 percent. U-Value Winter: 1.02. U-Value Summer: 0.93. SHGC: 0.90 Shading Coefficient: 1.03 Outdoor Visible Light reflectance: 8 percent.

PART 3 EXECUTION

3.1 INSTALLATION

A. Refer to Section 088101 – Glass Installation for installation requirements.

END OF SECTION

GLASS INSTALLATION

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. Glass and glazing required throughout Project and not specified as a part of other Sections.

C. Related Sections:

1. Section 088100 GLASS AND GLAZING.

D. Glass and glazing is specified with the following components. Unless otherwise noted, glass and glazing specified elsewhere shall conform to materials and glazing requirements and procedures specified in this Section.

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. "Glazing Manual" published by Flat Glass Marketing Assn.

C. "Safety Standard for Architectural Glazing Materials (16 CFR 1201) CI and CII issued by the Consumer Product Safety Commission.

D. ANSI Z 97.1, "Safety Glass Test Requirements".

E. ASTM International.

1. ASTM C864 Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.

2. ASTM C1036 Standard Specification for Flat Glass.

3. ASTM E774 Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units. (This standard is withdrawn and no replacement has been issued).

F. DD-G-1403.

G. Sealed Insulating Glass Manufacturers Association (SIGMA) Recommendations.

H. BAAQMD Regulation 8-51 - Adhesive and Sealant Products.

1.3 SYSTEM DESCRIPTION

A. Install each piece of glass watertight and airtight. Each installation shall withstand local, normal temperature changes, wind loading, impact loading (for operating sash and doors) without failure of any kind, including loss or breakage of glass, failure of sealants or gaskets to remain watertight, deterioration of glazing materials, and other defects of work.

B. Where no thickness of glass is given in the glass schedule, it shall be determined by glass manufacturer for the wind loads specified.

1.4 SUBMITTALS

A. Submit under provisions of Section 013000 Submittal Procedures.

B. Product Data: Manufacturer's product data, material safety data sheets, and specifications for installations indicated, listing specific materials proposed. Indicate completely, recommendations for use of primers, joint preparation and sealant dimensions, and shall state shelf life (from date of shipment by manufacturer to expiration date for use on a project) for the material. Provide necessary information required to translate batch number code into date of manufacture and to thereby determine the latest date of usage from manufacturer's shelf life requirements.

C. Certifications:

1. Certification that all insulating units furnished comply with Class CBA of ASTM E774 and the performance specified.

2. Certification that all sealants are fully compatible with the surfaces and finishes with which they are in contact.

D. Closeout Submittals: Material Safety Data: Sealant and adhesive quantity use for in accordance with requirements of BAAQMD Regulation 8-51.

1. Inside of the weatherproofing system, including printed statement of VOC content.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Glazing materials and installation shall comply with the requirements of Bay Area Air Quality Management District Regulation 8-51.

1.6 DELIVERY, STORAGE AND HANDLING

A. Package and deliver glass in manufacturer's sealed unopened containers, fully identified, and each pane clearly labeled with manufacturer's name and product designation.

B. Protect glass from damage and store in accordance with manufacturer's recommendations. Keep handling to a minimum. Protect edges of laminated and insulated glass from damage.

C. Glazing Sealants:

1. Deliver sealants and related accessories to the job site in factory sealed, unopened containers bearing manufacturer's name, product designation and batch number.

2. Store in unopened containers. Follow manufacturer's recommendations for storage temperatures and shelf life (see "Submittals" above).

3. Follow manufacturer's recommendations for handling products containing toxic materials. Keep flammable material away from heat, sparks and open flame. Use recommended solvents and cleaning agents for cleaning tools, equipment and skin.

1.7 ENVIRONMENTAL CONDITIONS

A. Perform no glazing operations when ambient temperature is at or below 40 deg F (4.4 deg C).

1.8 WARRANTIES

A. Insulating Glass Units: Warrant for 10 years from date of acceptance of Project to be free from delamination and failure of seals and not to develop material obstruction of vision as a result of dust, moisture or film formation on internal glass surfaces.

B. Low-E Glass: Warrant for 10 years from date of acceptance of Project to be free of peeling or other deterioration of the Low-E coating.

C. Glazing Sealants: Warrant for 10 years per sealant manufacturer's standard warranty of merchantable quality. Warranty shall certify that cured sealants:

1. Will perform as a watertight weatherseal.

2. Will not become brittle or crack due to weathering or normal expansion and contraction of adjacent surfaces.

3. Will not harden beyond a Shore A durometer of 50, nor soften below a durometer of 10.

4. Will not change color when used with compatible back-up materials.

5. Will not bleed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Glass Manufacturers: Vitro, PPG, LOF, Guardian Industries, Ford Glass, Hordis Brothers Inc., or equivalent. Provide all tinted and Low-E glass from the same manufacturer for the entire p
B. roject.

2.2 MATERIALS

A. Glass types, as indicated in Section 088100. Where no thickness is given, it shall be determined by glass manufacturer as specified in Article 1.04 System Description of this Section. Adjacent tinted and Low-E glass shall have the same light transmittance.

1. Glazing Materials and Accessories: Glazing materials and accessories shall be fully compatible with the materials and finishes with which they are in contact. Neoprene and EPDM materials shall not come in contact with silicone sealant materials. Silicone rubber spacers, setting and edge blocks and gaskets shall be either Type I (designed to prevent adhesion) or Type II (designed for adhesion) as per glazing system manufacturer's recommendations for each condition of use.

a. Glazing Tapes: Preformed, preshimmed polyisobutylene-butyl tape, 1/2 inch (13 mm) wide x thickness to suit proper face clearance of glass, black color; "Pecora BB-50 Extru-Seal", PTI "606", Tremco Preshimmed #440, or "Polyshim" ("Polyshim" only where glass lites exceed 150 united inches), or equal.

b. Glazing Sealants: One component, silicone based sealant, black color; Dow-Corning "795" or General Electric "Silpruf 2000", or equal. Sealants shall be recommended by the manufacturer for the particular condition of use.

c. Glazing Sealants (Butt Glazing And Steel Windows): One component, silicone based sealant, black color except clear color at butt glazing; Dow-Corning "795" or "999-A", or General Electric "Gesil N 2600", "SCS 100" or "SCS 1200", or equal, as per manufacturer's recommendations for the particular condition of use.

d. Primers (If Required For Sealants): Non-staining and non-etching type as recommended by sealant manufacturer.

e. Setting Blocks: Neoprene, EPDM or silicone rubber conforming to ASTM C 864, 80-90 Shore A durometer hardness, and which will permit permanent mounting. Blocks shall be 0.1 inch (2.5 mm) long for each square foot of glass area (but no less than 4 inches (100 mm)) x 1/16 inches (1.6 mm) less than full channel width and of thickness to provide proper bite and minimum edge clearance for glass. Where length of block may become excessive, lead blocks having a length of 0.05" for each square foot of glass (4 inches (100 mm) minimum) may be used. Do not use lead blocks for insulating, laminated or wire glass.

f. Edge Blocks: Neoprene, EPDM or silicone rubber conforming to ASTM C 864, 60-70 Shore A durometer hardness, and which will permit permanent mounting. Blocks shall be 3 inches (75 mm) minimum length x full channel width and of thickness or configuration to provide 1/8 inch (3 m) (nom.) clearance between block and glass edge.

g. Glazing Spacers: Neoprene, EPDM or silicone rubber conforming to ASTM C 864, 60-70 Shore A durometer hardness, size as required by glazing conditions, continuous (do not use intermittent spacers).

h. Insulation (Glass Spandrels): Owens-Corning Fiberglas "CW 225-FSK", or approved equal, fiberglass, semi-rigid, friction fit board with integral aluminum foil vapor barrier, "R" value as indicated on Drawings. Include galvanized steel mounting channels as required by job conditions.

2.3 FABRICATION

A. Cut glass to full fit and play, consistent with glass and glazing material manufacturers' recommendations and the requirements of the Drawings and References, Codes and Standards Article.

B. Follow code requirements and glass manufacturer's recommendations for minimum bite and edge and face clearances.

C. Cut lights to smooth straight edges, clean, free of nicks and flares; nipping not permitted. Follow glass manufacturer's directions exactly for tinted and Low-E glass.

D. Where glass edges (including cut openings) are required to be exposed, grind smooth and polish.

E. Tempered and heat strengthened glass shall be horizontally treated only. Fabrication and treatment shall, where at all possible, be such that roller distortion lines (where they may occur) will run horizontally (parallel to sill and head) after installation.

F. Glass Identification:

1. Tempered and heat strengthened glass shall bear the manufacturer's identification as to type and thickness.
2. Glazing in fire rated doors and fire rated windows shall bear UL classification marking in accordance with UL 9.

3. Manufacturer's and UL identifications for glazing shall be permanently etched so as to be visible after glass has been set in place and glazed.

4. Glass other than tempered, heat strengthened and UL-marked glass shall not have labels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect surfaces to receive glazing materials and report defects which might adversely affect the glazing work. Commencing work implies acceptance of surfaces as satisfactory.

B. Weep systems shall be open.

C. Surfaces shall be free of condensation and moisture.

D. Steel surfaces shall be primed and dry.

3.2 PREPARATION

A. Clean rebates and glazing reveals free of foreign matter, special coatings, dust, grease, projections and irregularities prior to setting glass. Solvents used for cleaning shall not etch or damage glass or metal surfaces.

B. Wipe glass free of dust and oil.

3.3 INSTALLATION

A. Conform to recommendations of glass manufacturer where such covers points not shown on Drawings or specified herein.

B. Remove "loose" stops furnished with the units and reinstall as a part of the glazing operation.

C. Handle lites so as to prevent nicks and flares on glass edges.

D. Install glass exceeding 1/8" thickness on identical setting blocks permanently mounted and centered at 1/4 points. If necessary to reduce deflection of horizontal supporting member, blocks may be placed at 1/8 points or with the nearest end 6" (whichever is greater) from edge of glass unit. Ensure that blocks are equidistant from centerline of glass. Do not obstruct weep holes.

E. Provide permanently mounted edge blocks at head and jambs of dry-glazed lights to prevent damage to glass edges during installation and lateral shifting of glass due to thermal and seismic loads and vibrations. Follow recommendations of Flat Glass Marketing Assn. Glazing Manual.

F. Set glass to maintain bite, edge and face clearance stipulated by code and the glass manufacturer.

G. Take special precautions to protect laminated glass edges from deterioration of vinyl interlayer by moisture.

H. Glaze dry-glazed aluminum doors and frames as per manufacturer's directions using glazing gaskets and seals furnished with the units.

I. Miter gaskets at corners, and install so as to prevent pulling away at corners. Gaskets with gaps or other visible irregularities on door and window units shall be corrected by manufacturer or fabricator at no additional cost to University.

J. Set interior non-wired glass in fixed stops with glazing tape one face.

K. Wire glass installed in metal frames and stops shall be embedded in metal sash putty, and all exposed joints between the metal and the glass struck and pointed.

L. Close and tightly seal all partly used sealant containers, and store protected in well-ventilated area at temperature recommended by sealant manufacturer.

3.4 FIELD QUALITY CONTROL

A. Conduct field check (test) of glazing in exterior for water leakage in accordance with AAMA 501.2.

B. After substantial cure of exterior glazing sealants which are exposed to the weather, test for water leaks. Flood the joint exposure with water directed from a 3/4 inch (38 mm) garden hose held perpendicular to the wall face, 24 inches (600 mm) from the joint, connected to a water system with 43 psf minimum static water pressure. Move stream of water along joint at an approximate rate of 20 feet (6 m) per minute.

C. Test approximately 5 percent of total glazing system in locations which are typical of every joint condition and which can be inspected easily for leakage on opposite face. Conduct tests in presence of the Project Manager, who will determine actual percentage of joints to be tested and the actual period of exposure to water from hose, based upon extent of observed leakage or lack thereof.

D. Repair glazing installation at leaks or, where leakage is excessive, replace glazing sealants.

E. Where nature of observed leakage indicates possibility of inadequate glazing joint bond strength, the Project Manager may direct that additional testing be performed at a time when joints have been fully cured, followed by natural exposure through both extreme temperatures, and returned to range of temperature in which it is feasible to conduct testing. Repair or replace work as required for permanent elimination of leakage.

3.5 WASTE MANAGEMENT

A. Separate float glass and place in designated containers for recycling.

B. Separate tempered glass and place in designated containers for recycling.

C. Place used sealant containers in designated containers for legal disposal.

3.6 CLEANING

A. Initial cleaning of glass surfaces is a part of this Section. Follow glass manufacturer's directions exactly for cleaning tinted and Low-E glass. Do not use abrasive cleaners or sharp instruments. Final cleaning and periodic cleaning of glass for protection from etching due to alkaline runoff from cementitious surfaces or due to construction soil is a part of the General Subcontract and is specified as a part of Division 01.

3.7 PROTECTION

A. Protect installed glass from damage due to subsequent construction operations.

B. Identification or caution markers shall not be applied to glass surfaces nor shall they be applied to metal surfaces in any way which would damage or stain the metal.

C. Replace glass broken or damaged prior to acceptance of Project. Costs occasioned by replacement shall be borne by those causing the damage.

END OF SECTION

GYPSUM BOARD

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Fiberglass-mat faced, mold- and moisture-resistant gypsum board.

B. Related Sections:

1. Section 061000 Rough Carpentry.

1.02 REFERENCES

A. ASTM International (ASTM):

1. ASTM C473 Standard Test Methods for Physical Testing of Gypsum Panel Products.

2. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

3. ASTM C630 Standard Specification for Water-Resistant Gypsum Backing Board.

4. ASTM C840 Standard Specification for Application and Finishing of Gypsum Board.

5. ASTM C1396 Standard Specification for Gypsum Board.

6. ASTM C1658 Standard Specification for Glass Mat Gypsum Panels.

7. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

8. ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers**.**

9. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.

B. Gypsum Association (GA):

1. GA-214 Recommended Levels of Gypsum Board Finish.

2. GA-216 Application and Finishing of Gypsum Panel Products.

1.03 SUBMITTALS

A. Product Data: Manufacturer’s specifications and installation instructions for each product specified.

1.04 QUALITY ASSURANCE

A. Regulatory Requirements: Provide products that comply with the following limits for surface burning characteristics when tested per ASTM E84:

1. Flame spread: 76-200.

2. Smoke developed: 0-450.

B. Provide products that are GREENGUARD Indoor Air Quality Certified and GREENGUARD Children & Schools Certified for low emissions of volatile organic compounds (VOCs) by GREENGUARD Environmental Institute.

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

D. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

E. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

F. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

1.05 WARRANTY

A. Provide products that offer twelve months of coverage against in-place exposure damage (delamination, deterioration and decay).

B. Manufacturer’s Warranty: Three years against manufacturing defects.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design: Georgia-Pacific Gypsum LLC:

1. Fiberglass-Mat Faced Gypsum Board: DensArmor Plus Interior Panel.

2. Fire-Rated Fiberglass-Mat Faced Gypsum Board: DensArmor Plus Fireguard.

B. American Gypsum.

C. CertainTeed Corp.

D. Lafarge North America Inc.

E. National Gypsum Company.

F. PABCO Gypsum.

G. Temple-Inland.

H. USG Corporation.

2.02 MATERIALS

A. 5/8 Inch Fire-Rated Fiberglass-Mat Faced Gypsum Board:

1. Thickness: 5/8 inch.

2. Width: 4 feet.

3. Length: 8 feet.

4. Weight: 2.5 pounds per square foot.

5. Edges: Tapered.

6. Surfacing: Coated fiberglass mat on face, back, and long edges.

7. Flexural Strength, Parallel (ASTM C473, ASTM C1658): Not less than 100 lbf.

8. Flexural Strength, Perpendicular (ASTM C473, ASTM C1658): Not less than 140 lbf.

9. R-Value (ASTM C518): Not less than 0.67.

10. Nail Pull Resistance (ASTM C473, ASTM C1658): Not less than 90 lbf.

11. Humidified Deflection (ASTM C473, ASTM C1658): Not more than 1/8 inch.

12. Hardness, Core, Edges, and Ends (ASTM C473, ASTM C1396): Not less than 15.

13. Water Absorption (ASTM C630, ASTM C1396, ASTM C1658): Less than 5 percent of weight.

14. Mold Resistance (ASTM D3273): 10, in a test as manufactured.

15. Microbial Resistance (ASTM D6329): Will not support microbial growth.

16. Acceptable Products:

    a. 5/8 inch DensArmor Plus Fireguard, Georgia-Pacific Gypsum.

    b. 5/8 inch DensArmor Plus Fireguard C, Georgia-Pacific Gypsum.

2.03 PERFORMANCE REQUIREMENTS

A. Moisture- and Mold-Resistant Assemblies: Provide and install moisture- and mold-resistant glass-mat gypsum wallboard products with moisture-resistant surfaces complying with ASTM C 1658 and ASTM C 1177 where indicated on Drawings and in all locations which might be subject to moisture exposure during construction.Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

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

D. Low-Emitting Materials: For ceiling and wall assemblies, provide materials and construction identical to those tested in assembly and complying with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

PART 3 EXECUTION

3.01 INSTALLATION

A. General: In accordance with GA-216, ASTM C840 and manufacturer’s recommendations.

1. Manufacturer’s Recommendations:

    a. Current “Product Catalog”, Georgia-Pacific Gypsum.

3.03 PROTECTION

A. Protect gypsum board installations from damage and deterioration until the date of Substantial Completion.

3.04 SCHEDULE

For purposes of this schedule, exposure to water is defined as follows: Direct Exposure: Surfaces normally soaked, saturated or, regularly and frequently exposed to water and moisture. Incidental Exposure: Surfaces immediately adjacent to lavatories, sinks, urinals, water closets, and other plumbing fixtures. No Exposure: Surfaces in locations not normally exposed to water and moisture sources. Abuse-resistant gypsum board shown on drawings			TYPICAL PAPER FACED	ENHANCED RESISTANCE PAPER FACED OR GLASS MAT	COATED GLASS MAT
TOILET AND BATHROOMS	Walls with Adjacent Plumbing Fixtures - Wet Walls (Incidental Exposure):	Paint and Wall Coverings		X	
		Tile and Adhered Sheet/Panel Finishes			X
	Wall locations other than wet walls (No Exposure)	Paint and Wall Coverings		X	
		Tile and Adhered Sheet/Panel Finishes			X
	Tub and Shower Walls (Direct Exposure):	Paint and Wall Covering Finishes above Tub and Shower Finishes		X	
		Tile and Adhered Sheet/Panel Finishes			X
	Ceilings (No Exposure)	Paint Only		X	
	Walls above ceilings (Incidental Exposure)		X	X	X
Interior Faces of Exterior Walls (No Exposure, excerpt for future potential of water and moisture infiltration through exterior wall)				X	
All Other Walls and Ceilings (No Exposure) – Paint only			X		

END OF SECTION

CERAMIC TILE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Tile and Accessories:

1. Floor and Wall Glazed.
2. Trim and Accessories.
3. Setting Materials.

1.2 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI A108.1C - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar -or- Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar.
2. ANSI A108.4 - Specifications for Ceramic Tile Installed with Organic Adhesives or Water-Cleanable Tile Setting Epoxy Adhesive.
3. ANSI A108.10 - Specifications for Installation of Grout in Tilework.
4. ANSI A118.6 - Standard Ceramic Tile Grouts.
5. ANSI A118.9 - Test Methods and Specifications for Cementitious Backer Units
6. ANSI A137.1 - Specifications for Ceramic Tile.

B. ASTM International (ASTM):

1. ASTM C 50 - Standard Practice for Sampling, Sample Preparation, Packaging, and Marking of Lime and Limestone Products.
2. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
3. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes.
4. ASTM C 241 - Standard Test Method For Abrasion Resistance of Stone Subjected to Foot Traffic.

C. Tile Council of North America (TCNA): TCA Handbook for Ceramic Tile Installation, 2007.

1.3 SUBMITTALS

A. Submit under provisions of Section 013000.

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. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints,

thresholds, ceramic accessories, and setting details.

D. Selection Samples: Samples of actual tiles for selection.

E. Manufacturer's Certificate:

1. Certify that products meet or exceed specified requirements.

2. For each shipment, type and composition of tile provide a Master Grade Certificate signed by the manufacturer and the installer certifying that products meet or exceed the specified requirements of ANSI A137.1.

F. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum two years experience.

B. Single Source Responsibility: Obtain each type and color of tile from a single source. Obtain each type and color of mortar, adhesive and grout from the same source.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging until ready for installation.

B. Protect adhesives and liquid additives from freezing or overheating in accordance with manufacturer's instructions.

C. Store tile and setting materials on elevated platforms, under cover and in a dry location and protect from contamination, dampness, freezing or overheating.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not install adhesives in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during tiling and for a minimum of 7 days after completion.

1.7 EXTRA MATERIALS

A. Provide for Owner's use a minimum of 20 sq ft of the primary sizes and colors of tile specified, and 20 linear ft of the primary sizes and colors of wall base specified, boxed and clearly labeled.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: American Olean (or equivalent)

B. Requests for substitutions will be considered in accordance with provisions of Section 016000.

2.2 TILE

A. General: Provide tile that complies with ANSI A137.1 for types, compositions and other characteristics indicated. Provide tile in the locations and of the types colors and pattern indicated on the Drawings and identified in the Schedule and the end of this Section. Tile shall also be provided in accordance with the following:

1. Factory Blending: For tile exhibiting color variations within the ranges selected under Submittal of samples, blend tile in the factory and package so tile taken from one package shows the same range of colors as those taken from other packages.

B. Floor and Wall Glazed Tile:

1. Product: Porcelain tile by American Olean.
2. Moisture Absorption: Less than .5 percent to less than 20 percent.
3. Size and Shape: As shown in schedule at the end of this section.
4. Surface Finish: Textured.
5. Colors: As listed in schedule at the end of this section.
6. Trim Units: Matching cove base, cove base corner, bullnose, cove/inside finger cove, radius cap, sink rail incorner/outcorner, outside cove corner shapes in sizes coordinated with field tile.

2.3 TRIM AND ACCESSORIES

A. Non-Ceramic Trim: Satin natural anodized extruded aluminum, stainless steel, brass, etc, style and dimensions to suit application, for setting using tile mortar or adhesive; use in the following locations:

1. Thresholds at door openings.

2. Expansion and control joints, floor and wall.

2.4 SETTING MATERIALS

A. Mortar Bed Materials:

1. Portland cement: ASTM C150, type 1, gray or white.
2. Hydrated Lime: ASTM C207, Type S.
3. Sand: ASTM C144, fine.
4. Latex additive: As approved.
5. Water: Clean and potable.

B. Mortar Bond Coat Materials:
1. Dry-Set Portland Cement type: ANSI A118.1.
2. Latex-Portland Cement type: ANSI A118.4.
3. Epoxy: ANSI A118.3, 100 percent solids.

C. Standard Grout: Cement grout, sanded or unsanded, as specified in ANSI A118.6; color as selected.

D. Polymer modified cement grout, sanded or unsanded, as specified in ANSI A118.7; color as selected.

E. Cleavage Membrane:

1. Polyethylene film, ASTM D4397, 4.0 mil thickness.

F. Waterproofing Membrane at Floors: Membrane in accordance with ANSI A118.10 and as follows:
1. Polyethylene Sheet Product.

G. Membrane at Walls: 4 mil (0.1 mm) thick polyethylene film, ASTM D4397.

H. Membrane at Walls: Reinforced asphalt paper.

I. Metal Lath: ASTM C847, Flat expanded diamond mesh, not less than 2.5 lbs/SY, galvanized finish.

J. Cementitious Backer Board: ANSI A118.9; High density, cementitious, glass fiber reinforced with 2 inch (50 mm) wide coated glass fiber tape for joints and corners:

1. Thickness: 1/2 inch (13 mm).

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that wall surfaces are free of substances which would impair bonding of setting materials, smooth and flat within tolerances specified in ANSI A137.1, and are ready to receive tile.

B. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of setting materials to sub-floor surfaces, and are smooth and flat within tolerances specified in ANSI A137.1.

C. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.

D. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

A. Protect surrounding work from damage.

B. Remove any curing compounds or other contaminates.

C. Vacuum clean surfaces and damp clean.

D. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

E. Install cementitious backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of dry-set mortar to a feather edge.

F. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.3 INSTALLATION - GENERAL

A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.

B. Lay tile to pattern indicated. Arrange pattern so that a full tile or joint is centered on each wall and that no tile less than 1/2 width is used. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.

E. Form internal angles square and external angles bullnosed.

F. Install non-ceramic trim in accordance with manufacturer's instructions.

G. Install thresholds where indicated.

H. Sound tile after setting. Replace hollow sounding units.

I. Keep expansion joints free of adhesive or grout. Apply sealant to joints.

J. Allow tile to set for a minimum of 48 hours prior to grouting.

K. Grout tile joints. Use standard grout unless otherwise indicated. Make joints watertight, without voids, cracks, excess mortar or excess grout.

L. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.4 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCA Handbook Method F113, dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.

1. Where waterproofing membrane is indicated, install in accordance with TCA Handbook Method F122, with latex-portland cement grout.
2. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F131.

3.5 INSTALLATION - FLOORS - MORTAR BED METHODS

A. Over interior concrete substrates, install in accordance with TCA Handbook Method F111, with cleavage membrane, unless otherwise indicated.

1. Where waterproofing membrane is indicated, with standard grout or no mention of grout type, install in accordance with TCA Handbook Method F121.
2. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F132, bonded.
3. Where epoxy or furan grout is indicated, but not epoxy or furan bond coat, install in accordance with TCA Handbook Method F114, with cleavage membrane.

B. Cleavage Membrane: Lap edges and ends.

C. Waterproofing Membrane: Install as specified in ANSI A108.13.

D. Mortar Bed Thickness: 1-1/4 to 2 inch (32 to 51 mm) maximum, unless otherwise indicated.

3.6 INSTALLATION - WALL TILE

A. Over cementitious backer units on studs, install in accordance with TCA Handbook Method W244, using membrane at toilet rooms.

B. Over gypsum wallboard on wood or metal studs install in accordance with TCA Handbook Method W243, thin-set with dry-set or latex-portland cement bond coat, unless otherwise indicated.

1. Where mortar bed is indicated, install in accordance with TCA Handbook Method W222, one coat method.
2. Where waterproofing membrane is indicated other than at showers and bathtub walls, install in accordance with TCA Handbook Method W222, one coat method.

C. Over interior concrete and masonry install in accordance with TCA Handbook Method W202, thin-set with dry-set or latex-portland cement bond coat.

3.7 CLEANING

A. Upon completion of placement and grouting, clean tile installations as recommended by TCA and tile manufacturer. Tile may be cleaned with acid solutions only when permitted by the tile and grout manufacturer’s printed instruction, but not sooner than 10 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush the surface with clean water before and after cleaning.

B. Leave finished installation clean and free of cracked, chopped, broke, unbounded or otherwise defective work.

3.8 PROTECTION OF FINISHED WORK

A. Do not permit traffic over finished floor surface for 72 hours after installation.

B. Cover floors with kraft or rosin paper and protect from dirt and residue from other trades.

C. Where floor will be exposed for prolonged periods cover with plywood or other similar type walkways

3.9 SCHEDULE

A. Wall, floor, base, and trim tile as selected by owner from American Olean Bricktown, Laurel Heights, and Belmar, collections.

END OF SECTION

ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes

1. Acoustical ceiling panels.
2. Exposed grid suspension system.
3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.
4. Perimeter trim.

B. Related Sections

1. Section 092000 – Plaster and Gypsum Board
2. Division 23 – HVAC Air Distribution
3. Division 26 – Electrical

C. Alternates

1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products that have not been approved by Addenda, the specified products shall be provided without additional compensation.

2. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.

2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.

9. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material.

    a. Armstrong Fire Guard Products

10. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint.

11. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.

12. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum .

13. ASTM E 1264 Classification for Acoustical Ceiling Products.

B. International Building Code.

C. ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality

D. NFPA 70 National Electrical Code

E. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

F. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components

G. International Code Council-Evaluation Services Report - Seismic Engineer Report

1. E SR 1308 - Armstrong Suspension Systems

H. International Association of Plumbing and Mechanical Officials - Seismic Engineer Report

1. 0244 - Armstrong Single Span Suspension System

I. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010.

J. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings

K. International Well Building Standard

L. Mindful Materials

M. Living Building Challenge

N. U.S. Department of Agriculture BioPreferred program (USDA BioPreffered).

1.4 SYSTEM DESCRIPTION

A. Continuous/Wall-to-Wall

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.

B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.

C. Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.

D. Acoustical Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.6 SUSTAINABLE MATERIALS

A. Transparency: Manufacturers will be given preference when they provide documentation to support sustainable requirements for the following: Material ingredient transparency, Removal of Red List Ingredients per LBCV3, Life Cycle impact information, Low-Emitting Materials, and Clean Air performance.

B. Health Product Declaration. The end use product has a published, complete Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.

C. Declare Label. The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Free or Compliant (less than 1% proprietary ingredients).

D. Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide emissions data showing their products meet CDHP Standard Method v1.1 (Section 01350).

E. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.

F. End of Life Programs/Recycling: Where applicable, manufacturers that provide the option for recycling of their products into new products at end-of-life through take-back programs will be preferred.

G. Products meeting LEED V4 requirements including:

1. Storage & Collection of Recyclables

2. Construction and Demolition Waste Management Planning

3. Building Life-Cycle Impact Reduction

4. Building Product Disclosure and Optimization Environmental Product Declarations

5. Building Product Disclosure and Optimization Sourcing of Raw Materials

6. Building Product Disclosure and Optimization Material Ingredients

7. Construction and Demolition Waste Management

1.7 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

1. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

2. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.

3. Fire Resistance: As follows tested per ASTM E119 and listed in the appropriate floor or roof design in the Underwriters Laboratories Fire Resistance Directory

B. Acoustical Panels: As with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.

C. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.8 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 damaged units in any way.

1.9 PROJECT CONDITIONS

A. Space Enclosure:

1. Standard Ceilings: Do not install interior ceilings until space is enclosed and weatherproof; wet work in place is completed and nominally dry; work above ceilings is complete; and ambient conditions of temperature and

humidity are continuously maintained at values near those intended for final occupancy. Building areas to receive ceilings shall be free of construction dust and debris.

2. HumiGuard Plus Ceilings: Building areas to receive ceilings shall be free of construction dust and debris. Products with HumiGuard Plus performance and hot dipped galvanized steel, aluminum or stainless steel suspension systems can be installed up to 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. Cannot be used in exterior applications where standing water is present or where moisture will come in direct contact with the ceiling.

3. HumiGuard Max Ceilings: Building areas to receive ceilings shall be free of construction dust and debris. Ceilings with HumiGuard Max performance can be installed in conditions up to 120°F (49°C) and maximum humidity exposure including outdoor applications, and other standing water applications, so long as they are installed with either SS Prelude Plus, AL Prelude Plus, or Prelude Plus Fire Guard XL suspension systems. Products with Humiguard Max performance can be installed in exterior applications, where standing water is present, or where moisture will come in direct contact with the ceiling. Only Ceramaguard with AL Prelude Plus suspension system can be installed over swimming pools.

1.10 ALTERNATE CONSTRUCTION WASTE DISPOSAL

A. Ceiling material being reclaimed must be kept dry and free from debris.

B. Contact the Armstrong Recycle Center a consultant will verify the condition of the material and that it meets the Armstrong requirements for recycling. The Armstrong consultant with provide assistance to facilitate the recycling of the ceiling.

1.11 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:

1. Acoustical Panels: Sagging and warping

2. Grid System: Rusting and manufacturer's defects

B. Warranty Period:

1. Acoustical panels: Ten (10) years from date of substantial completion

2. Cirrus: Ten (10) years from date of substantial completion

3. Suspension: Ten (10) years from date of substantial completion

4. Ceiling System: Thirty (30) years from date of substantial completion

C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.12 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Ceiling Panels:

1. Armstrong World Industries, Inc.

B. Suspension Systems:

1. Armstrong World Industries, Inc.

C. Perimeter Systems

1. Armstrong World Industries, Inc.

2.2.1 ACOUSTICAL CEILING UNITS

A. Acoustical Panels Type AP

1. Surface Texture: Medium

2. Composition: Mineral Fiber

3. Color: White

4. Size: 24 in x 24 in

5. Edge Profile: Angled Tegular 15/16 in for interface with PRELUDE XL 15/16" Exposed Tee grid.

6. Noise Reduction Coefficient(NRC): ASTM C 423; Classified with UL label on product carton 0.70

7. Ceiling Attenuation Class (CAC) : ASTM C 1414; Classified with UL label on product carton 40

8. Sabin:N/A

9. Articulation Class (AC):

10. Flame Spread: ASTM E 1264; Class A (UL)

11. Light Reflectance (LR) White Panel: ASTM E 1477; 0.85

12. Dimensional Stability: HumiGuard Plus

13. Recycle Content: Post-Consumer - 0% Pre-Consumer - 73%

14. Material Ingredient Transparency: Health Product Declaration (HPD); Declare Label

15. Life Cycle Assessment: Third Party Certified Environment Product Declaration (EPD)

16. Acceptable Product: CIRRUS, 572 No added formaldehyde as manufactured by Armstrong World Industries

2.3.1 METAL SUSPENSION SYSTEMS

A. Components:

1. Main beams and cross tees, base metal and end detail, fabricated from commercial quality hot dipped galvanized steel complying with ASTM A 653. Main beams and cross tees are double-web steel construction with type exposed flange design. Exposed surfaces chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.

   a. Structural Classification: ASTM C 635 Intermediate Duty duty
   b. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
   c. Sustainability: Environmetal Product Declaration (EPD), Health Product Declaration (HPD)
   d. Acceptable Product: PRELUDE XL 15/16" Exposed Tee as manufactured by Armstrong World Industries

B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft annealed, with a yield stress load of at least time three design load, but not less than 12 gauge.

D. Edge Moldings and Trim:

1. 780036 - 12ft Hemmed Angle Molding

E. Accessories:

2.4 METAL EDGE MOLDINGS AND TRIM

A. Manufacturers:

1. Armstrong.

2. Chicago Metallic Corporation.

3. Fry Reglet Corporation.

4. Gordon, Inc.

5. MM Systems, Inc.

6. USG Interiors, Inc.

7. Or equivalent

B. Roll-Formed Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical tile edge details and suspension systems indicated; formed from sheet metal of same material and finish as that used for exposed flanges of suspension system runners

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations. (Exception: HumiGuard Max Ceilings)

3.2 PREPARATION

A. 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. Coordinate panel layout with mechanical and electrical fixtures.

B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION

A. Follow manufacturer installation instructions.

B. Install suspension system and panels in accordance with the manufacturer's instructions, in compliance with ASTM C 636, per the CISCA'S "Ceiling Systems Handbook", and with the authorities having jurisdiction.

C. Suspend main beam from overhead construction with hanger wires spaced 4-0 on center along the length of the main runner. Install hanger wires plumb and straight.

D. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.

E. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.

F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.

B. 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 any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

C. Before disposing of ceilings, contact the Armstrong Recycling Center at 877-276-7876, select option #1 then #8 to review with a consultant the condition and location of building where the ceilings will be removed. The consultant will verify the condition of the material and that it meets the Armstrong requirements for recycling. The Armstrong consultant with provide assistance to facilitate the recycle of the ceiling.

END OF SECTION

RESILIENT TILE FLOORING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

1.02 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract (including General and Supplementary Conditions and Division 1 sections) apply to the work of this section.

1.03 RELATED SECTIONS

A. Other Division 9 sections for floor finishes related to this section but not the work of this section.

B. Division 3 Concrete; not the work of this section.

C. Division 6 Wood and Plastics; not the work of this section.

D. Division 7 Thermal and Moisture Protection; not the work of this section.

1.04 QUALITY ASSURANCE AND REGULATORY REQUIREMENTS

A. Select an installer who is competent in the installation of Mannington solid vinyl flooring with acrylic adhesive or two part epoxy.

B. If required, provide resilient flooring and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.

C. If required, provide flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
   a. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I.
   b. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.

1.05 SUBMITTALS

A. Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance instructions (latest edition of "Mannington’s Professional Installation Guide,") for flooring and accessories.

B. Submit the manufacturer's standard samples showing the required colors for flooring and applicable accessories.

C. If required, submit the manufacturer's certification that the flooring has been

tested by an independent laboratory and complies with the required fire tests.

1.06 ENVIRONMENTAL CONDITIONS

A. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.

B. Store materials in a clean, dry, enclosed space off the ground, and protected from the weather and from extremes of heat and cold. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.

C. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65ºF (18ºC) and a maximum temperature of 85ºF (29ºC) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55ºF (13ºC) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances.

D. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond and moisture tests.

PART - PRODUCTS

2.01 RESILIENT FLOORING MATERIALS

A. Provide **Amtico Spacia / Spacia First** - **Stone / Abstract** by Mannington Mills, Inc.:

Construction	Luxury Vinyl Tile & Plank
Overall Thickness	0.098 inches (2.5 mm)
Wearlayer Thickness	20 mil (0.51 mm)
Finish Layer	[Quantum Guard HP] [Quantum Guard Elite] urethane aluminum oxide topcoat cured by ultraviolet process with 10 year warranty
Sizes (Style Dependent)	12” x 12” (305 x 305 mm), 12” x 18” (305 x 457 mm), 18” x 18” (457 x 457 mm), 7.25” x 48” (185 x 1220 mm) Other sizes available – refer to brochure matrix for specific product sizes
Pieces Per Carton	27 pieces of 12” x 12”, 18 pieces of 12” x 18”, 12 pieces of 18” x 18”, 9 pieces of 7.25” x 48”
Coverage Per Carton	27 sq. ft. (3.76 m²) (21.75 sq. ft. for 7.25” x 48”)
Specification (ASTM F-1700)	Class 3, Type B
Stain & Chemical Resistance (ASTM F-925)	Excellent
Wear Group Classification (EN 685)	23/33/42
Flooring Radiant Panel (ASTM-E-648)	Class 1 – Passes
N.B.S. Smoke Chamber (ASTM-E-662)	<450 – Passes

Slip Resistance (ASTM C1028)	ADA Compliant
Abrasion Resistance (EN 660)	Group T, Volume Loss <2.0 mm^3
Residual Indentation (ASTM F-1914)	<0.08 mm, Passes
Dimensional Stability (ASTM F-2199)	Passes
Flexibility (ASTM F-1700)	Passes
IIC – Impact Insulation Class (ASTM E492)	1 ½" lightweight concrete – IIC 46
STC – Sound Transmission Class (ASTM E90)	1 ½" lightweight concrete – STC 53
Castor Chair Resistance (EN 425)	Passes
FloorScore Indoor Air Quality	SCS Certified
Recycled Content	Approximately 35% Pre-Consumer by Total Product Weight
Warranty	10 Year Warranty Against Wear-Out From Normal Foot Traffic

2.03 ADHESIVES

A. Provide Amtico QuickStix under the flooring. Wall Base Adhesive at the wall base as recommended by manufacturer.

2.04 ACCESSORIES

A. For patching, smoothing, and leveling monolithic subfloors (concrete, terrazzo, quarry tile, ceramic tile, and certain metals), provide Portland Cement-Based Underlayment.

B. For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.

C. LVT must have the ability to be chemically welded to adjoining broadloom carpet materials.

D. Provide transition/reducing strips tapered to meet abutting materials.

E. Provide threshold of thickness and width as shown on the drawings.

F. Provide resilient edge strips of width shown on the drawings, of equal gauge to the flooring, homogeneous vinyl or rubber composition, tapered or bullnose edge, with color to match or contrast with the flooring, or as selected by the Architect from standard colors available.

G. Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.

B. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.

C. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

D. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.02 PREPARATION

A. Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects with Portland Cement-Based Underlayment as recommended by the flooring manufacturer.

B. Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents.

C. Perform subfloor Calcium Chloride Tests (and Bond Tests) as described in "Amtico Installation Guide," to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring.

D. Vacuum or broom-clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

3.03 INSTALLATION OF FLOORING

A. Install flooring in strict accordance with "Mannington’s Professional Installation Guide."

B. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.

C. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.

D. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.

E. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's instructions. Observe the recommended adhesive trowel notching, open times, and working times.

3.04 INSTALLATION OF ACCESSORIES

A. Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical, with inside corners fabricated from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.

B. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.

C. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.

D. Apply [butt-type] [overlap] metal edge strips where shown on the drawings, [before] [after] flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

3.05 CLEANING AND PROTECTION

A. Perform initial maintenance according to the latest edition of the manufacturer’s maintenance and warranty literature. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

END OF SECTION

PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Paint.
2. Wood sealant.
3. Wood stains.

1.2 ENVIRONMENTAL CONDITIONS

A. Utilize a low VOC product, (less than 100 g/1), for semi-gloss and gloss. Use a water-based, “zero VOC” product (less than 10 g/1), for flat and egg shell. All interior and exterior paints shall be lead and VOC free.

1.3 SUBMITTALS

A. Product Data: Provide material specifications, characteristics, and instructions for using adhesives and grouts.

1.4 EXTRA MATERIALS

A. Provide one gallon of each color and sheen in unopened cans, sealed and labeled by manufacturer.

1.5 DELIVERY, STORAGE AND HANDLING

A. All materials must be of commercial grade made by reputable, recognized manufacturers, and delivered to the job in original containers bearing brand name and manufacturer’s name with seals unbroken and unusable materials.

B. Store materials and equipment only at locations as directed. Keep storage spaces clean and orderly and free of debris and unusable materials.

C. Deliver materials in original packages, containers, or bundles bearing brand names and identification of manufacturer or supplier.

D. Store materials in dry location, fully protected from weather and direct exposure to sunlight.

E. Use paint directly from manufacturer – Do not add water or otherwise thin paint materials.

1.6 WARRANTY

A. The Contractor shall furnish written guarantee that all work, materials and workmanship required by this section of the contract be free from defects for a period of one (1) year after the acceptance of the building.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Manufacturers:

1. PPG paint and coating systems (or equivalent).
2. MAB (M. A. Bruder) paint systems (or equivalent).
3. Benjamin Moore “Pristine” paint line with zero VOC content (or equivalent).

B. Coatings: All coatings shall be pre-mixed, except field catalyzed coatings of good flow and brushing properties, capable of drying or curing free of streaks or sags. All coatings shall be lead-free.

C. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials required to achieve the finishes specified.

2.2 FINISHES

A. All colors shall be selected by Owner.

B. Refer to schedule at end of section for surface finish schedule.

C. All new wood and steel doors shall be primed and painted with semi-gloss finish.

D. Interior walls shall be primed and painted with eggshell or low luster finish.

E. All exterior trims shall be primed and painted with semi-gloss finish.

F. Provide three (3) color paint system for interior spaces; one (1) color for walls and ceilings, one (1) color for doors, and one (1) color for trim.

2.3 CLEAR FINISH / STAINS

A. Stains shall be vegetable oil based, non-polyurethane, waterborne for exterior use with UV protection.

B. Clear finish interior wood to be 2 coats clear shellac, plus 1 coat MAB Dull-Glo Varnish (or equivalent).

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that substrate conditions are ready to receive work.

B. Measure moisture content of porous surfaces using an electronic moisture meter. Do not apply finishes unless moisture content is less than 12 percent.

C. Correct minor defects and clean surfaces which affect work of this Section.

D. Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

E. Gypsum Board Surfaces: Fill minor defects with latex compounds. Spot prime defects after repair.

F. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

G. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove foreign matter. Remove oil and grease with a solution of tri-sodium phosphate, rinse well and allow to dry.

H. Uncoated Ferrous Surfaces: Remove scale by wire brushing, sandblasting, clean by washing with solvent. Apply treatment of phosphoric acid solution. Prime paint after repairs.

I. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust, hand power tool clean, clean surfaces with solvent. Prime bare steel surfaces.

J. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.

K. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lighting between coats.

L. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied.

M. Protect adjacent work from damage.

N. Prepare all surfaces in accordance with manufacturer’s requirements.

3.2 APPLICATION

A. All paints shall be premixed. Paints shall not be thinned with water.

B. New painting shall be performed by experienced mechanics using roller, spray (with back roll on second coat) or brush, applying paint according to manufacturer's instructions, free of runs, sags, holidays and brush or roller markings.

C. Sand transparent finishes lightly between coats to achieve required finish.

D. Where clear finishes are required, tint fillers to match wood.

E. Back prime interior and exterior wood work scheduled to receive paint finish with primer paint.

F. Back prime interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

G. Finished surfaces shall be finished to a straight line where adjoining other colors or unpainted surfaces.

H. Fill cracks, nail holes, and other defects in wood with whiting putty after prime coat has been applied.

I. No exterior work to be done in rainy, damp, or frosty weather. No interior work to be done until building is dry.

J. All wood doors shall be primed and painted with a high gloss protective finish. Give top and bottom edges of doors the same number of finish coats as face. Paint prime coated butts the same as door frame unless otherwise directed.

K. Paint access doors, panelboards, grilles, exposed piping and similar items to match adjacent surfaces unless otherwise directed.

L. Give any finished work that does not have full coverage or is not neat and workmanlike additional coats of finish or remove entirely and re-do as required by Architect until it presents a satisfactory and acceptable appearance.

3.3 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Paint shop primed equipment.

B. Remove unfinished louvers, grilles, covers, and access panels and paint separately.

C. Prime and paint exposed pipes, exposed ducts, hangers, brackets, collars and supports, except where items are pre-finished.

D. Paint both sides and edges of plywood backboards.

E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.4 CLEANING

A. As work proceeds, promptly remove finishes where spilled, splashed, or spattered.

B. Store paint rags and waste in tightly covered metal containers or remove from job site at end of each day's work.

3.5 PAINT SCHEDULE - EXTERIOR SURFACES

A. Steel - ferrous metal (or equivalent):

1. Two (2) coats PPG 3330 Durethane Mastic Eurethane, self priming.

B. Steel - galvanized metal:

1. Two (2) coats PPG 3330 Durethane Mastic Eurethane, self priming.

C. Garage Door (if not pre-finished)

1. One (1) coat PPF Paints Amerlock Sealer at 1.0 mils dry.
2. One (1) coat PPF Paints Durethane DTM 95-3330 Series.

3.6 PAINT SCHEDULE - INTERIOR SURFACES

A. Steel - Unprimed:

1. One (1) coat PPG 4020PF, PitTech Plus Primer/Finish w/ Acrylic.
2. Two (2) coats PPF 4216HP, Acrylic Enamel Sem-Gloss.

B. Concrete, concrete block:

1. One (1) coat of block filler, PPG 6-15XI.
2. Two (2) coats of PPG Sun-Proof 7 Series, semi-gloss

C. Gysum Board:

1. One (1) coat of acrylic enamel primer. PPG 4-4900 (or equivalent).
2. Two (2) PPG 4310 XI Speedhide, No VOC, eggshell (or equivalent).

D. Concrete floors (not receiving another flooring)

1. PPG Perma Crete Plexseal WB Interior/Exterior Clear Sealer

E. Exposed Pipe and Fittings:

1. Two (2) coats semi-gloss enamel

F. Wood:

1. Flat Finish (other than doors)

a. 1 Coat-PPG Seal Grip Alkyd Primer Series 17 -951.

b. 2 Coats-PPG Acri-Shield Max Eggshell 589-10 Series

END OF SECTION

EPOXY FLOOR COATING SYSTEM

PART 1 PRODUCTS

1.01 MANUFACTURER

PPG Industries, 1 PPG Place, Pittsburgh, Pennsylvania 15272, Phone 412-434-3131

1.02 MATERIALS

1. Prime Coat: PPG Flooring 912 LV, 100% Solids Epoxy Primer
2. Top Coat: PPG Flooring 610 SL, 100% Solids Epoxy Coating System
3. PPG Amercoat 888 Anti-Skid Additive (Mixed into Top Coat)

PART 2 EXECUTION

2.01 SURFACE CONDITIONS

A. After concrete has cured 28 days minimum, surface must be clean and dry, physically sound, and free of contamination. Surfaces must be free of holes, voids or defects. All curing compounds and sealers must be removed.

B. Under operating conditions, after heating and air has been installed and operational, verify that moisture content does not exceed 10 pounds per 1000 square feet in 24 hours using a calcium chloride test kit in accordance with ASTM F 1869. If moisture content is above 10 pounds per square feet the use of a moisture mitigating product may be required, contact your local Sales Rep for more information.

C. Contractor must report, in writing, surfaces left in improper condition by other trades. Application will constitute acceptance of surfaces by the applicator.

2.02 PREPARATION

A. Protect all areas not to be coated and isolate all sensitive equipment.

B. Prepare surfaces as required, per manufacturer's printed instructions. Preferred surface preparation is shot-blast or dustless diamond grinding to achieve a CSP 3-4 profile.

C. Material for crack fill and patching up to 0.5 inches: PPG Novaguard 5090 Gel.

D. Material for deep fill over 0.5 inches: PPG Flooring 833 FS Epoxy Mortar.

E. Material for expansion and control joints: PPG Flooring SL 60 JS.

F. Masking: Mask surfaces that require protection.

2.03 INSTALLATION

A. Comply with flooring system manufacturer's recommendations.

1. Prime Coat: Apply mixed epoxy prime coat at a rate of 160 square feet per gallon to achieve a thickness of 10 mils. Prime Coat to be PPG Flooring 912 LV.

2. Top-Coat: Apply mixed pigmented epoxy coating system at a rate of 100 square feet per gallon to achieve a total thickness of 16 mils. Mid Coat to be PPG Flooring 610 SL. Incorporate PPG Amercoat 888 Anti-Skid Additive for enhanced slip resistance

3. Allow to cure a minimum of 24 hours before allowing traffic on floor.

2.04 CLEANING

A. Remove waste materials, rubbish and debris and dispose of them in accordance with local regulations. Leave work areas in a clean condition.

END OF SECTION

VISUAL DISPLAY BOARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Enclosed Bulletin Boards.

1.2 RELATED SECTIONS

A. Section 061000 - Rough Carpentry: Framing and support for visual display boards and cases.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Burning Materials.

B. National Fire Protection Association (NFPA): NFPA 70 - National Electric Code.

C. Porcelain Enamel Institute: S-104 - Performance Specification for Porcelain Enamel Markerboards and Chalkboards.

1.4 SUBMITTALS

A. Submit under provisions of Section 013000.

B. 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.
   4. Cleaning Methods.

C. Shop Drawings: Submit shop drawings for each case type to be used.
   1. Show layout, panel joints, profiles, and product components, including corner and edge conditions, accessories, finish colors and textures.
   2. Show plans, elevations and sections.
   3. Show mounting types, heights, anchorage methods, and attachment devices.

D. Sign Schedule: Use same designations indicated on Drawings.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A minimum of 5 years experience in the manufacture of

visual display boards.

B. Installer Qualifications: A minimum of 5 years experience in the installation of visual display boards or as recommended by the manufacturer.

C. Regulatory Requirements:
   1. Surface Burning Characteristics: Flame spread required by authority having jurisdiction when based in accordance with ASTM E 84.
   2. Electrical Components: Listed and labeled as defined in accordance with NFPA 70.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Schedule delivery of visual display boards so that spaces are sufficiently complete that visual display boards can be installed immediately upon delivery.

C. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

D. Store materials in a dry, warm, ventilated weathertight location.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Existing Conditions: Verify actual dimensions by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.8 WARRANTY

A. Manufacturer's Warranty. Provide manufacturer's 50 year limited warranty for Vitre-Steel porcelain on steel writing surfaces.

1.9 COORDINATION

A. Coordinate Work with other operations and installation of finish materials to avoid damage to installed materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: AARCO Products, Inc., or equivalent.

B. Substitutions: as approved by Architect.

C. Requests for substitutions will be considered in accordance with provisions of Section 016000.

2.2 PRODUCTS

A. Enclosed Bulletin Board Cases, AARCO model DCC3672R (or equivalent).

1. Provide one unit, please as directed by Owner.
2. General: All frames constructed of aluminum extrusions with reinforced corners.
3. Hinged door design: Framed tempered glass with cylinder lock.
4. Hinged door number 10-921 for indoor installation.
5. Size 36 inches high by 72 inches wide (1219 mm by 1829 mm) three doors.
6. Glazing: Tempered glass.
7. Hinges: Continuous type.
8. Writing/Posting Surfaces:
   a. Black Felt Letter Panel as specified, (include tab letters)
9. Aluminum Finishes:
   a. Frame and track finish: Clear anodized.
10. Mounting: Surface mounted with concealed mounting hangers.
11. Removable panels RR3636F
12. Include AARCO universal single-tab letters

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 printed instructions.

B. Contractor to provide blocking for attachment to wall.

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

INTERIOR SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Room signs.

1.2 REFERENCES

A. American National Standards Institute (ANSI): ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.

B. Architectural and Transportation Barriers Compliance Board (ATBCB): Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG).

1.3 SUBMITTALS

A. Submit under provisions of Section 013000 - Administrative Requirements.

B. Manufacturer's data sheets on each product to be used, including:
1. Installation methods.
2. Maintenance methods.
3. Cleaning methods.

C. Shop Drawings: Submit shop drawings for each sign type to be used, including:
1. Show layout, profiles, and product components, including edge conditions, accessories, finish colors, and textures.
2. Show sign mounting types, heights, anchorage methods, and attachment devices.

D. Selection Samples: For each finish product specified, two full-size signs representing manufacturer's full range of available colors and patterns.

E. Sign Schedule: Use designations indicated on in Schedule below.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Signage shall comply with applicable requirements of ADAAG and ANSI A117.1

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in accordance with manufacturer's requirements.

B. Store products in manufacturer's unopened packaging with labels intact until ready for installation.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having

jurisdiction.

1.6 PROJECT CONDITIONS

A. Environmental Requirements: 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, U.S.: Seton Identification Products

B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 INTERIOR SIGNAGE

A. Architectural Signage System: Seton Custom Size Engraved Room Signs as manufactured by Seton Identification Products.

1. Style: Arch
2. Face Material: Setonflex flexible, stain-resistant, multi-layer acrylic treated for outdoor use.
3. Colors: Face color Selected by Owner; graphics and letter color Selected by Owner.
4. Sign Size: 8 inches by 6 inches.
5. Lettering Style: Architect.
6. Include braille translation on all signage.
7. Mounting Style: Adhesive

B. Maximum Occupancy Signage: Seton “Maximum Occupancy Not To Exceed” signage.

1. Dimensions: 10”x14”
2. Material: Plastic
3. Seton UltraTuff Overlaminate

C. Accessories: Installation accessories specified in manufacturer's instructions.

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.

B. Locate signs in accordance with ADAAG requirements.

C. Install signs plumb and square.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Repair or replace damaged products before Substantial Completion.

3.5 SCHEDULES

A. Signage Schedule as follows:

1. Signs listed below to be placed adjacent to door at 4’-0” AFF;

a. Door 101: “BATHROOM” - Include HC symbol

b. Door 102: “STORAGE ROOM”

d. Door 103: “DAY ROOM”

e. Door 106: “ENGINE BAYS”

f. Door 107: “UTILITY ROOM”

l. Maxmimum Occupancy – limit to be determined via submittal

2. Any additional interior signs requested by the Owner shall be included in the submittal at no additional expense.

END OF SECTION

MISCELLANEOUS SPECIALTIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Fire extinguishers and cabinets.

1.2 SUBMITTALS

A. Product Data: Provide data on products and specified accessories.

1.3 QUALITY ASSURANCE

A. Fire Extinguishers: Conform to NFPA 10.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHERS

A. Manufacturers (or equivalent):

1. J. L. Industries, (612) 835-6850.
2. Johnson-Lee, Division of W. F. Lee Corp.
3. Larsen's Manufacturing Co..

B. Dry Chemical Type: Stainless steel tank, with pressure gage, UL-rated 4-A, 60-B:C, 10 lb. capacity, for Class A, B, C fires in common areas. Provide a 5 lb. ABC type extinguishers in each apartment (in the cabinet below the sink), (no hook or cabinet).

C. Fire extinguisher cabinets as manufactured by Ambassador, or approved equal.

D. Manufacturer's standard units of suitable size for housing fire extinguishers of type and capacity indicated and as follows:

1. Cabinet Type

   a. Stud partition: Cabinet box partly recessed with recessed vision panel; min 4" recess.

   b. CMU partition: Cabinet box flush mounted with vision panel.

2. Provide keyed lock for each cabinet.
3. Larson "Flame-Shield" at locations required fire rated installation.
4. In service areas (non-resident and non-public areas) install all extinguishers on wall hooks.
5. Refer to drawings for locations.

E. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface.

1. Rolled Edge Trim: Square edges with backbend of 2-1/2".

F. Factory Finishing of Fire Extinguisher Cabinets: Comply with NAAMM "Metal Finishes Manual" to provide uniformly finished products. Provide color as indicated.

1. Baked enamel finish: Color to be white.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that surfaces and internal wall blocking are ready to receive work and opening dimensions are as indicated on drawings and instructed by the manufacturer.

3.2 INSTALLATION - FIRE EXTINGUISHERS

A. Install extinguishers in accordance with manufacturer's instructions.

B. Install units level in wall openings.

C. Top of unit less than or equal to 5-feet above floor. Bottom of unit must be at least 4-feet above floor.

3.4 SCHEDULE

A. Provide (4) four fire extinguishers and cabinets, installed, or as shown on the drawings.

END OF SECTION

TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Toilet and bath accessories.

1.2 REFERENCES

A. Conform to NJ Uniform Construction Code for installing work in conformance with ANSI A117.1.

1.3 SUBMITTALS

A. Product Data: Provide material specifications, characteristics, and installation directions.

B. Samples: Submit two (2) samples of each component illustrating color and finish.

1.4 WORK INCLUDED

A. Provide all labor, superintendence, materials, tools, transportation, and equipment and all means of construction necessary and reasonably incidental to complete the work as specified herein and as shown on the Contract Drawings.

B. All materials and labor obviously a part of the work, and as necessary for proper installation and/or operation of same, although not specifically indicated on the Contract Drawings and/or in the Specifications shall be provided by the Contractor as if called in detail without additional cost to the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Manufacturers: Subject to compliance with requirements, provide accessories by one (1) of the following or approved equal:

1. Taymor Industries.
2. Bobrick Washroom Equipment, Inc.
3. AJ Washroom Accessories
4. Bradley Corp.

B. Mirror Glass: Clear, tempered safety type with copper and silver coating, organic over-coating, beveled edges.

C. Stamped metals are not permitted.

2.2 FABRICATION

A. Form surfaces flat without distortion. Weld and grind joints smooth.

B. Shop assemble components and package with anchors and fittings.

C. Back paint components to prevent electrolysis.

D. Provide steel anchor plates, adapters, and anchor components for installation.

E. Hot dip galvanized exposed and painted ferrous metal and fastening devices.

2.3 FINISHES

A. Anchors: Galvanize to 1.25 oz/sq yd.

B. Ferrous Metals - Shop Primed: Pre-treat and clean, spray apply one (1) coat primer and bake.

C. Enamel: Pre-treat and clean, apply one (1) coat primer and two (2) coats electrostatic baked enamel.

D. Chrome/Nickel Plating: ASTM B456, Type SC2; satin finish.

E. Stainless Steel: No. 4 satin luster finish.

F. Porcelain ceramic: glazed finish, color per Architect selection.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify exact location of accessories for installation.

B. Deliver inserts and rough-in frames to site. Provide templates and rough-in measurements as required.

3.2 INSTALLATION

A. Install fixtures, accessories and items in accordance with manufacturer's instructions.

B. Install plumb and level, securely and rigidly anchored to substrate. Provide solid wood blocking at all accessories unless accessory is securely attached directly to studs.

3.3 SCHEDULE

A. General: Provide the following accessories in bathrooms.

B. Manufacturers: Model number and manufacturer's listed below are for the purpose of indicating model features desired. Comparable products by approved manufacturers may also be utilized.

1. Toilet accessories (in public toilet rooms) shall be manufactured by Bobrick, classic series or equivalent, unless noted otherwise.

a. Mirror: provide full width surface mounted mirror from top of backsplash to 6'-4" AFF (36" high). Support with continuous metal "J" channel at lower edge and clear plastic mirror clips at sides and across to edge.

b. Soap Dispenser: Bradley Model 657, one at each lavatory.

c. Toilet Paper Holder: # B-4288, one at each water closet.

d. Paper towel dispenser/waste receptacles: provide one per toilet room; #B-72860

e. Sanitary napkin disposal: provide one in each women's toilet room; model #B-270.

f. Grab Bars: B6806, Installed into blocking, chrome finish with concealed screws; in locations, sizes and shapes as indicated complete with mounting kits.

1) In wheelchair accessible stalls provide one, 42" grab bar at side wall of toilet, one 36" grab bar at rear wall of toilet and one 18" vertical grab bar at the side.

END OF SECTION

METAL LOCKERS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Heavy Duty Welded Lockers.

B. Locker benches.

1.02 REFERENCES

A. ADAAG - Americans with Disabilities Act, Accessibility Guidelines.

1.03 SUBMITTALS

A. Submit under provisions of Section 013000.

B. 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. Shop Drawings: Show the following:

1. Dimensioned drawings including plans, elevations, and sections to show locker locations and interfaces with adjacent substrates.

2. Details of assembly, erection, anchorage and clearance requirements.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and finishes.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Protect locker finish and adjacent surfaces from damage.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer: Penco Products, Inc. 5-Tier All-Welded Lockers with diamond ventilation and friction catch pad-lock handle.

B. Requests for substitutions will be considered in accordance with provisions of Section 016000.

C. Provide only metal lockers fabricated in the United States by a single domestic manufacturer.

2.02 MATERIALS

A. Steel: Prime grade mild cold-rolled sheet steel free from surface imperfection, capable of taking a high-grade enamel finish and in compliance with ASTM A1008.

B. Steel: Sheet steel components shall be fabricated using zinc-coated steel free from surface imperfection, capable of taking a high-grade enamel finish and in compliance with ASTM A879.

C. Hooks: Zinc plated forged steel, ball ends.

D. Bolts and Nuts: Zinc plated truss fin head bolts and hex nuts.

2.03 HEAVY DUTY LOCKERS

A. Heavy Duty Lockers: All locker body components made of cold rolled steel specially formed for added strength and rigidity and to ensure tight joints at fastening points.

1. Lockers with Doors: Penco All-Welded lockers, with 4 inch (101 mm) legs. (optional)

B. Locker Body: All-Welded Lockers.

1. Sides, Bottoms, Tops, and Shelves:

   a. 16 gauge steel.
   b. Perforated sides

2. Backs: Solid 18 gauge steel.

   a. Groups to 48 inches (1.219 m) wide: One-piece back.
   b. Groups over 48 inches (1.219 m) wide: Two-piece back.

3. Doors:

   a. 14 gauge steel.
   b. Ventilation: 3/4 inch (19 mm) wide by 1-1/2 inch (38 mm) high diamond-shaped perforations.
   c. Solid doors.

4. Sides: Vertical frames and sides.

   a. Intermediate vertical side frames: Frame channel securely welded to locker side.
   b. Ventilation: 3/4 inch (19 mm) wide by 1-1/2 inch (38 mm) high diamond-shaped perforations.
   c. No Ventilation: Solid Sides.

5. Tops: Notched and formed sheet; one continuous flat top for each group of lockers.

6. Bottoms: Notched and formed sheet; one continuous bottom for each group of lockers, suitable for anchoring to wood or concrete bases.

7. Shelves: Flanged four sides with additional return flange on front edge to increase strength.

8. Door frames, 16 gauge formed in a channel shape with continuous vertical door strikes.

C. Locker Doors: One piece sheet steel.

1. Multi-Point Latch Doors: Full channel formation of adequate depth to fully conceal lock bar on lock side, channel formation on hinge side, right angle formations across top and bottom, with holes for attaching number plates.

2. Single Point Latch Doors: 14 gauge door reinforced by a full height 3-1/2 inch (89 mm) wide, 18 gauge vertical pan welded to the top, bottom and hinge side flanges and rear of door skin on 12 inch (305 mm), 15 inch (381 mm) and 18 inch (457 mm) wide doors. Provide a horizontal pan for doors wider than 18 inches (457 mm).

3. Single Point Latch Doors: 14 gauge door reinforced by a full 18 gauge inner pan welded to outer door skin on all four sides.

   a. Solid outer door, solid inner pan
   b. Diamond perforated outer, offset diamond perforated inner pan.
   c. 3 inch or 6 inch louvered outer door, mini louvered inner pan.
   d. Mini louvered outer, mini louvered inner pan.

5. Box Lockers (4 to 9 Tiers): Channel formations on lock and hinge sides; right angle flanges on top and bottom with friction catch door pull.

6. Ventilation:
   a. Doors 20 inches (508 mm) or higher: 3/4 inch (19 mm) wide by 1-1/2 inch (38 mm) high diamond-shaped perforations.
   b. All other doors: 7/16 inch (11 mm) wide by 15/16 inch (24 mm) high diamond-shaped perforations.

7. Ventilation: Provide louvered doors in manufacturer's standard louver pattern.

D. Hinges:

1. Continuous Hinges: Continuous piano hinge for the full height of the door.

E. Legs: Furnish each group of lockers with four 4-inch (101 mm) high 14 gauge steel legs welded to locker bottom.

2.04 DOOR HANDLES AND LATCHING

C. Box Lockers (4 to 9 Tier):

1. Equip doors for use with padlocks with an 18 gauge combination door pull, staple, and lock hole cover plate with integral friction catch.

2.06 ACCESSORIES

A. Continuous Sloped Hoods: 18 gauge steel, slope rise equal to 1/3 of the locker depth (18.5 degrees), plus a 1 inch (25 mm) vertical rise at front.

1. Supplied in 72 inch (1829 mm) lengths only.

2. Slip joints without visible fasteners at splice locations.

3. Provide necessary end closures.

4. Finish to match lockers.

B. Finished End Panels: Minimum 16 gauge steel formed to match locker depth and height, 1 inch (25 mm) edge dimension; finish to match lockers and install with concealed fasteners.

C. Benches: Laminated selected hardwood, 1-1/4 inch (31 mm) full finished thickness, corners rounded and sanded, surfaces finished with two coats of clear lacquer.

1. Width: 12 inches (305 mm) wide.

2. Lengths: As shown.

M. Heavy-Duty Bench Pedestals: Steel tubing with 10 gauge steel flanges welded to each end, 16-1/4 inches (412 mm) high, finish to match lockers.

2.07 FABRICATION

A. Fabricate lockers square, rigid, without warp, with metal faces flat and free of distortion.

B. Welded Lockers: Pre-assemble lockers by welding into one piece structures in groupings most practical for job requirements, welds free of burrs; maximum width of group to be 54 inches (1.371 m); no bolts, nuts, or rivets allowed in assembly of main locker groups.

C. Finish: Enamel powder coat paint finish electrostatically applied and properly cured to manufacturer’s specifications for optimum performance. Finishes containing volatile organic compounds and subject to out-gassing are not acceptable. Locker exterior and interior shall be painted the same color.

1. Powder Coat - Dry Thickness: 1 to 1.2 mils (0.025 to 0.03 mm).

2. Powder Coat Plus - Dry Thickness: 2 to 2.2 mils (0.05 to 0.055 mm).

3. Color: As selected from manufacturer's standard colors.

4. Special Finish

   a. Custom color
   b. Anti-Microbial
   c. TGIC

PART 3 – EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates and bases have been properly prepared.

B. If substrate and bases are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 INSTALLATION

A. Install metal lockers and accessories at locations shown in accordance with manufacturer's instructions, location to be determined by Owner.

B. Install lockers plumb, level, and square.

C. Anchor lockers to floor and wall at 48 inches (1.219 m) or less, as recommended by the manufacturer.

D. Bolt adjoining locker units together to provide rigid installation.

E. Install sloping tops and metal fillers using concealed fasteners. Provide flush hairline joints against adjacent surfaces.

F. Install front bases between legs without overlap or exposed fasteners. Provide end bases on exposed ends.

G. Install benches by fastening bench tops to pedestals and securely anchoring to the floor using appropriate anchors for the floor material.

3.03 ADJUSTING AND CLEANING

A. Adjust doors and latches to operate without binding. Verify that latches are operating satisfactorily.

B. Adjust built-in locks to prevent binding of dial or key and ensure smooth operation prior to substantial completion.

C. Touch-up with factory-supplied paint and repair or replace damaged products before substantial completion.

3.04 PROTECTION

A. Protect installed products until completion of project.

END OF SECTION

FLAG POLE – 20 FOOT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aluminum flagpoles.

B. Flag(s)

1.2 REFERENCES

A. Aluminum Association (AA): Aluminum Finishes.

B. American Society for Testing and Materials (ASTM):

1. ASTM B 241 - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

2. ASTM B 597 - Standard Practice for Heat Treatment of Aluminum Alloys.

C. National Association of Architectural Metal Manufacturers (NAAMM): NAAMM FP 1001 - Guide Specifications for Design of Metal Flagpoles.

1.3 SUBMITTALS

A. Submit under provisions of Section 013000.

B. 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 instructions.

C. Shop Drawings:

1. Structural Calculations: Include structural analysis data.

2. Include details of foundation system.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:

1. Five years experience installing flagpoles of similar height and complexity in locale of project.

2. Authorized and trained by manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Spiral wrap flagpoles with heavy paper and enclose in a hard fiber tube or other protective container.

B. Store products in manufacturer's unopened packaging until ready for installation.

C. Keep flagpole and accessories covered and dry to prevent soiling or damage.

D. Handle with protective gloves to prevent unwanted distortion.

1.6 PROJECT CONDITIONS

A. Structural Performance: Provide flagpole assemblies, including anchorages and supports, capable of withstanding the effects of wind loads, determined according to NAAMM FP 1001 for specified ground speed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer:

1. The Flagpole Warehouse; 3600 Cantrell Industrial Ct., Acworth, GA 30101. ASD. Toll Free Tel: (800) 962-0956. Fax (770)-974-4560. Email: flagpoles@flagco.com . Web: www.flagpolewarehouse.com.

2. Or Owner/Architect approved equal.

2.2 FLAGPOLES

A. Architectural Series:

1. External Halyard: Manually operated halyard. Ball-bearing, nonfouling, revolving truck assembly. Finish exposed metal surfaces to match flagpole.

a. Exposed Height: 20ft
b. Overall Length: 23ft
c. Diameter: 5” base and 3” top
d. Wall thickness: .188”
e. Wind Speed: 120mph flagged
f. Mounting Device: Ground Sleeve

B. Finish:

1. Directional Sanded Satin Finish: Fine, directional, medium satin polish; buff complying with AA-M20; and seal aluminum surfaces with clear, hard-coat wax

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until final grades and elevations have been established.

B. If others determine final base elevation, confirm with Architect before proceeding.

3.2 INSTALLATION

A. Install flagpole where shown on drawings and in accordance with manufacturer’s written instructions.

1. Flagpole shall be plumb.

3.3 SPECIAL REQUIREMENTS & ACCESSORIES

A. Examples: Shoe Bases, Double halyards, eagle ornaments, extra snaps and covers, lock boxes, flag arrangements, lightning rods and flags.

B. Cleat Cover Box with padlock feature, color to match flagpole. Install per manufacturers written instructions.

C. Halyard Cover, 5’ length, color to match flag pole. Install per manufacturers written instructions.

END OF SECTION

WINDOW BLINDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Horizontal louver window blinds.

1.2 SUBMITTALS

A. Product Data: Provide material specifications, characteristics, and installation directions.

B. Samples: Submit two (2) samples of each manufacturer's standard colors.

PART 2 - PRODUCTS

2.1 HORIZONTAL LOUVER BLIND

A. Manufacturers:

1. Levelor.
2. Bali "Customizer".
3. Hunter Douglas "Celebrity".
4. Approved equal.

B. Louver Slats: One (1) inch wide; spring tempered, pre-finished aluminum horizontal slats.

C. Slat Support: Woven polypropylene, ladder configuration.

D. Head Rail Housing: Pre-finished, internally fitted with hardware for blind operation.

E. Cord: Braided nylon.

F. Control Wand: Plastic, removable type.

G. Head Support: Overhead head rail housing attachment.

H. Accessory Hardware: Type recommended by blind manufacturer.

I. Color: WHITE.

J. At multiple-mulled windows, provide separate blind for each window unit.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that openings are ready to receive work.

3.2 INSTALLATION

A. Install blinds in accordance with manufacturer’s instructions.

B. Secure in place with concealed fasteners.

C. Adjust blinds for smooth operation.

END OF SECTION

KITCHEN CABINETRY / COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Cabinetry
2. Countertops

1.2 SUBMITTALS

A. Shop Drawings

1. Cabinet Shop Drawings: Indicate sizes of units, hardware, mounting systems, all dimensions. Shop drawings shall include plan and elevations of all cabinets.
2. Manufacturer's Information: Provide original printed product data, including cabinet door options, finish options, typical construction details.

B. Samples

1. Plastic laminate for countertops.
2. Cabinet doors for finish selection
3. Door and drawer hardware.

1.3 DELIVERY STORAGE AND HANDLING

A. Protect Cabinets & Countertops during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

PART 2 - PRODUCTS

2.1 KITCHEN CABINETS

A. Cabinets shall meet the following minimum requirements:

1. Cabinets shall be all wood construction solid oak door.
2. ¾ inch hardwood front frame,
3. ½ inch plywood end panels with birch or equal veneer,
4. 3/8 inch plywood top and bottom panels,
5. ½ inch plywood hanging rails, 1/8 inch plywood back panel,
6. ¾ inch plywood shelving with wood edge band for wall units,
7. ½ inch plywood shelving with wood edge band for base units,
8. ½ inch toe kick same as end panel,
9. ½ inch plywood or better drawer rails,
10. Epoxy coated side mounted drawer guides rated at least 75 pounds load capacity

11. Drawer fronts to be dove tail joined to rails, or four sided construction.
12. Hinges to be of high quality steel, wrap around with self-closing feature.
13. Sink front units shall have a base (bottom) shelf, coped around plumbing.
14. Do not provide vertical mullions between pairs of cabinet doors to allow for full width access.
15. All exposed hardware to be US3 finish, have corrosion resistant finish, and be usable by persons with manual disabilities.
16. Cabinets shall be from an established manufacturer producing a full line of stock size base and wall cabinets with accessories including end pieces, fillers, scribe fins, corner fillers, valances, blind and angle corner cabinets.
17. All exposed surfaces, both inside and outside of cabinet, shall be sealed.
18. Laminate face cabinets of approved quality will be permitted upon approval of the Owner.
19. Products: *Tri Pac* "Ultrawood" Series "Alton Oak", "Gemini" or "Eclipse" Styles, *Tru-Wood* "Shadowwood" Series, or *Crotone* "Verdum" Series; Plantation Oak #648 or Ashley Oak #1212; available through Evans Cabinets (912) 272-2530. Substitutions may only be made with the express written permission of the Owner and Architect.
20. Provide 4" wire pulls (finish as selected by Owner) at all doors and drawers in kitchens, baths and at all other casework.
21. Provide minimum of three additional pull/knob styles for Owner selection.

B. Kitchen Countertop:

1. Laminate

I. Post formed, high pressure, plastic laminate countertop with continuous 4 inch back splash and roll front edge. ALT: shop fabricated with metal filler joint between countertop and backsplash.
II. Laminate shall be continuous to under drip edge.
III. Laminate to be "Formica" or equal, laminated to minimum of ¾ inch plywood with 1-1/2 inch front face.
IV. All other laminate joints shall be beveled to conceal the edge of the laminate.
V. Color selected from manufacturer's full range of options.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacturing with respect to surfaces, sizes or patterns.

2. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level countertops and with 1/16" maximum offset in flush adjoining 1/8" maximum offsets in revealed adjoining surfaces.

3.2 CABINET INSTALLATION

A. Preparation: Verify that blocking and backings have been installed at appropriate locations for anchorage.

B. Mount cabinets to firm backing and to each other with concealed screws through wood framing member of cabinet. Install flush, square and smoothly aligned. Seal open joints between backsplash and wall with sealant as previously specified. Adjust hardware and equipment to assure correct operation. Collect all warranties, operating manuals, and installation instructions and provide to client.

C. Do not begin installation of interior woodwork until potentially damaging construction operations are complete in the installation area.

D. Install cabinets plumb, level, true and straight with no distortions. Shim as required using concealed shims. Where cabinets abut other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips and moldings as indicated or required and in same finish to match cabinet face. Make joints neatly with uniform appearance.

E. Use exterior glue with particleboard in countertops with lay-in sinks.

F. Cabinets:

1. Install so doors operate smoothly, with edges aligned.
2. Install so drawers operate smoothly.
3. Install all hardware not installed in shop.
4. Anchor tops securely.
5. Install tops level, within 1/8" in 8 feet.
6. Mount cabinets to firm backing and each other with concealed screws through wood framing member of cabinet.

G. Countertops shall be mechanically fastened to base cabinets. Spline and glue joints in countertops; provide concealed mechanical clamping of joint. Provide cutouts for fixtures and appliances as indicated; drill pilot holes at corners before making cutouts. Smooth cut edges and coat with water proof coating or adhesive. Seal open joint between backsplash and wall.

H. Complete hardware installation and adjust doors and drawers for proper operation.

I. Protection: Protect woodwork from damage and maintain design environmental conditions.

3.3 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION

A. Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually. Where not possible to repair properly, replace woodwork at no cost to Owner. Adjust joinery for uniform appearance.

1. Clean finish carpentry work on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.
2. Sand and fill finish carpentry work as necessary to receive final finishes indicated and/or specified in Division 9.

END OF SECTION