



**PROJECT MANUAL FOR
FAYETTE COUNTY BID #1583-B
FAYETTE COUNTY FIRE STATION NO. 2
1852.00**

1330 HWY. 92 NORTH
FAYETTEVILLE, GA 30214

ARCHITECT:

K.A. OLDHAM DESIGN, INC.
75 JACKSON ST. SUITE 401
NEWNAN, GA 30263
P 770.683.9170

MECHANICAL:

GEORGE ENGINEERING ASSOCIATES, LLC
405 MILLARD FARMER ROAD
NEWNAN, GA 30263
P 770.252.4669

STRUCTURAL:

WILLETT ENGINEERING COMPANY
3528 HABERSHAM AT NORTHLAKE
TUCKER, GA 30084
P 770.270.9484

CIVIL:

PARAMOUNT ENGINEERING, LLC
11 EAST BROAD ST.
NEWNAN, GA 30263
P 770.473.9576

ELECTRICAL:

MADDOX GROUP INC.
9309 SEMINOLE ROAD
JONESBORO, GA 30236
P 770.471.9076

**FAYETTE COUNTY FIRE STATION NO. 4
1748.00**

278 MCELROY ROAD
FAYETTEVILLE, GA 30214

ARCHITECT:

K.A. OLDHAM DESIGN, INC.
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Purchasing Department
140 Stonewall Avenue West, Ste 204
Fayetteville, GA 30214
Phone: 770-305-5420
www.fayettecountyga.gov

January 3, 2019

Subject: Invitation to Bid #1583-B: Fire Stations 2 & 4 Construction

Gentlemen/Ladies:

Fayette County, Georgia is seeking bids from qualified Contractors for the Construction of Fire Stations 2 & 4, in accordance with the information and specifications contained herein.

A pre-bid conference will be held at 11:00 am, Tuesday, January 22, 2019, at the Fayette County Administrative Complex, 140 Stonewall Avenue West, Suite 100 in Fayetteville, GA 30214. This will be an opportunity for you to become more familiar with the project and to ask questions.

Questions concerning this invitation to bid should be addressed to Natasha Duggan, Contract Administrator in writing via email to nduggan@fayettecountyga.gov or fax to (770) 719-5534. Questions will be accepted until 3:00 pm, Wednesday, January 30, 2019.

The Purchasing Department office hours are Monday through Friday 8:00 am to 5:00 pm excluding holidays. The office telephone number is (770) 305-5420.

Please return your response to the following address:

Fayette County Purchasing Department
140 Stonewall Avenue West, Suite 204
Fayetteville, Georgia 30214

Bid Number: 1583-B

Bid Name: Fire Stations 2 & 4 Construction

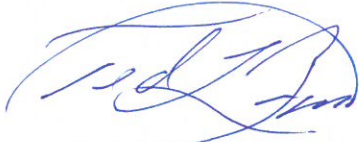
Your envelope must be sealed, and should show your company's name and address.

Bids will be received at the address below until 3:00 pm, Thursday, February 7, 2019 in the Purchasing Department, Suite 204. Bids will be opened at that time.

Bids must be signed to be considered. Late bids will not be considered. Faxed bids or emailed bids cannot be considered.

If you downloaded this Invitation to Bid from the county's website, it will be your responsibility to check the website for any addenda that might be issued for this solicitation. The county cannot be responsible for a bidder not receiving information provided in any addendum.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ted L. Burgess', enclosed within a large, loopy oval shape.

Ted L. Burgess
Director of Purchasing

TLB/nmd

ADDITIONAL TERMS AND CONDITIONS
Invitation to Bid #1583-B: Fire Stations 2 & 4 Construction

1. **Definitions:** The term “contractor” as used herein and elsewhere in these specifications shall be used synonymously with the term “successful bidder.” The term “county” shall mean Fayette County, Georgia.
2. **Bid is Offer to Contract:** Each bid constitutes an offer to become legally bound to a contract with the county, incorporating the invitation to bid and the bidder’s bid. The binding offer includes compliance with all terms, conditions, special conditions, specifications, and requirements stated in the invitation to bid, except to the extent that a bidder takes written exception to such provisions. All such terms, conditions, special conditions, specifications, and requirements will form the basis of the contract. The bidder should take care to answer all questions and provide all requested information, and to note any exceptions in the bid submission. Failure to observe any of the instructions or conditions in this invitation to bid may result in rejection of the bid.
3. **Binding Offer:** Each bid shall constitute a firm offer that is binding for sixty (60) days from the date of the bid opening, unless the bidder takes exception to this provision in writing.
4. **Bidder’s Questions:** The Fayette County Purchasing Department must receive questions about this invitation to bid in writing at least six days before the scheduled bid opening, excluding Saturdays, Sundays, and holidays. The county will post answers to questions and/or other information concerning the invitation to bid in the form of an addendum on the county’s website at http://www.fayettecountyga.gov/purchasing/bids_and_proposals.asp. It is the responsibility of the prospective bidder to check the website for any addenda issued for this invitation to bid.
5. **References:** Include with your bid a list of four (4) jobs that your company has done that are of the same or similar nature to the work described in this invitation to bid, on the form provided. Include all information as requested on the form.
6. **Bid Submission:** Submit your bid, along with any addenda issued by the county, in a sealed opaque envelope with the following information written on the outside of the envelope:
 - a. The bidder’s company name,
 - b. The bid number, which is **#1583-B**, and
 - c. The “reference” which identifies the bid, which is **“Fire Stations 2 & 4 Construction”**.

Mail or deliver one (1) unbound original bid (paperclip or binder clip acceptable, no staples), signed in ink by a company official authorized to make a legal and binding offer, to:

Fayette County Georgia
Purchasing Department
140 Stonewall Avenue West, Suite 204
Fayetteville, GA 30214

Attention: Contracts Administrator

You may submit bids in person, by U.S. mail, or by a commercial carrier. Do not submit bids by facsimile, e-mail, or other electronic means. Once submitted, all bids become the property of Fayette County.

7. **Bid Preparation Costs:** The bidder shall bear all costs associated with preparing the bid.
8. **Late Bids:** Bids not received by the time and date of the scheduled bid opening will not be considered, unless the delay is a result of action or inaction by the county.
9. **More than One Bid:** Do not submit alternate bids or options, unless requested or authorized by the county in the Invitation to Bid. If a responder submits more than one bid without being requested or authorized to do so, the county may disqualify the bids from that responder, at the county's option.
10. **Bid Corrections or Withdrawals:** The bidder may correct a mistake, or withdraw a bid, before the bid opening by sending written notification to the Director of Purchasing. Bids may be withdrawn after the bid opening only with written authorization from the Director of Purchasing.
11. **Defects or Irregularities in Bids:** The county reserves the right to waive any defect or irregularity in any bid received. In case of an error in extension of prices or totals in the bid, the unit prices shall govern.
12. **Prices Held Firm:** Prices quoted shall be firm for the period of the contract, unless otherwise specified in the bid. All prices for commodities, supplies, equipment, or other products shall be quoted FOB Destination, Fayette County or job site.
13. **Brand Name:** If items in this invitation for bid have been identified, described or referenced by a brand name or trade name description, such identification is intended to be descriptive, but not restrictive and is to indicate the quality and characteristics of products that may be offered. Alternative products may be considered for award if clearly identified in the bid. Items offered must meet required specifications and must be of a quality which will adequately serve the use and purpose for which intended.
14. **Bidder Substitutions:** Bidders offering substitutions or deviations from specifications stated in the invitation to bid, shall list such substitutions or deviations on the "Exceptions to Specifications" sheet provided, or on a separate sheet to be submitted with the bid. The absence of such list shall indicate that the bidder has taken no exception to the specifications. The evaluation of bids and the determination as to equality and acceptability of products or services offered shall be the responsibility of the county.
15. **Samples:** When the county requires samples as part of the bid and vendor selection process, bidders must provide requested samples within the time allotted, and at no cost to the county unless otherwise specified. Any goods provided under contract shall conform to the sample submitted. The county will return samples only at the bidder's request, and at the bidder's expense, if they are not destroyed by testing.
16. **Non-Collusion:** By responding to this invitation to bid, the bidder represents that the bid is not made in connection with any competing bidder, supplier, or service provider submitting a separate response to this invitation to bid, and is in all respects fair and without collusion or fraud.
17. **Bid Evaluation:** Award will be made to the lowest responsive, responsible bidder, taking into consideration payment terms, vendor qualifications and experience, quality, references, any exceptions listed, and/or other factors deemed relevant in making the award. The county may make such investigation as it deems necessary to determine the ability of the bidder to perform, and the bidder shall furnish to the county all information and data for this purpose as the county may request. The county reserves the right to reject any bid item, any bid, or all bids, and to re-advertise for bids.

18. **Contract Award:** The contract will be awarded by base bid plus selected alternates. The award will be made in the best interest of the county. Bidders may restrict their bids to consideration of only one Fire Station by so indicating on the "Exceptions to Specifications" page included in the invitation to bid. The county reserves the right to award contracts for construction of each Fire Station, or a single contract for both Fire Stations.
19. **Discounts:** Cash discounts offered will be a consideration in awarding the bid, but only if they give the county at least 15 days from receipt of invoice to pay. For taking discounts, time will be computed from the date of acceptance at destination or the date a correct invoice is received, whichever is the later date. Payment is deemed made, for the purpose of earning the discount, on the date of the check. For payment of full invoice price, minimum terms of net 30 are preferred.
20. **Trade Secrets - Confidentiality:** If any person or entity submits a bid or proposal that contains trade secrets, an affidavit shall be included with the bid or proposal. The affidavit shall declare the specific included information which constitutes trade secrets. Any trade secrets must be either (1) placed in a separate envelope, clearly identified and marked as such, or (2) at a minimum, marked in the affidavit or an attached document explaining exactly where such information is, and otherwise marked, highlighted, or made plainly visible. See O.C.G.A. § 50-18-72 (A)(34).
21. **Trade Secrets – Internal Use:** In submitting a bid, the bidder agrees that the county may reveal any trade secret materials contained in the bid to all county staff and officials involved in the selection process, and to any outside consultant or other third parties who may assist in the selection process. The bidder agrees to hold harmless the county and each of its officers, employees, and agents from all costs, damages, and expenses incurred in connection with refusing to disclose any material which the bidder has designated as a trade secret.
22. **Ethics – Disclosure of Relationships:** Before a proposed contract in excess of \$10,000.00 is recommended for award to the Board of Commissioners or the County Administrator, or before the County renews, extends, or otherwise modifies a contract after it has been awarded, the contractor must disclose certain relationships with any County Commissioner or County Official, or their spouse, mother, father, grandparent, brother, sister, son or daughter related by blood, adoption, or marriage (including in-laws). A relationship that must be reported exists if any of these individuals is a director, officer, partner, or employee, or has a substantial financial interest in the business, as described in Fayette County Ordinance Chapter 2, Article IV, Division 3 (Code of Ethics).

If such relationship exists between your company and any individual mentioned above, relevant information must be presented in the form of a written letter to the Director of Purchasing. You must include the letter with any bid, proposal, or price quote you submit to the Purchasing Department.

In the event that a contractor fails to comply with this requirement, the County will take action as appropriate to the situation, which may include actions up to and including rejection of the bid or offer, cancellation of the contract in question, or debarment or suspension from award of a County contract for a period of up to three years.

23. **Contract Execution & Notice to Proceed:** After the Board of Commissioners makes an award, all required documents are received by the county, and the contract is fully executed with signature of both parties, the county will issue a written Notice to Proceed. The county shall not be liable for payment of any work done or any costs incurred by any bidder prior to the county issuing the Notice to Proceed.
24. **Unavailability of Funds:** This contract will terminate immediately and absolutely at such time as appropriated and otherwise unobligated funds are no longer available to satisfy the obligations of the county under the contract.
25. **Insurance:** The successful bidder shall procure and maintain the following insurance, to be in effect throughout the term of the contract, in at least the amounts and limits as follows:
- a. **General Liability Insurance:** \$1,000,000 combined single limit per occurrence, including bodily and personal injury, destruction of property, and contractual liability.
 - b. **Automobile Liability Insurance:** \$1,000,000 combined single limit each occurrence, including bodily injury and property damage liability.
 - c. **Worker's Compensation & Employer's Liability Insurance:** Workers Compensation as required by Georgia statute.
 - d. **Builder's "All Risk" Insurance:** In the event the contractor is performing construction services under the contract, contractor shall procure and maintain "all-risk" builder's insurance, providing coverage for the work performed under the contract, and the materials, equipment or other items incorporated therein, while the same are located at the construction site, stored off-site, or at the place of manufacture. The policy limit shall be at least 100% of the value of the contract, including any additional costs which are normally insured under such policy.

Before a contract with the successful bidder is executed, the successful bidder shall provide Certificates of Insurance for all required coverage. The successful offeror can provide the Certificate of Insurance after award of the contract, but must be provided prior to execution of the contract document by both parties. The certificate shall list an additional insured as follows:

Fayette County, Georgia
140 Stonewall Avenue West
Fayetteville, GA 30214

26. **Bid Bond:** You must include a bid bond with your bid, equal to five percent (5%) of the total amount bid. Bid bonds shall be provided by a surety which appears on Georgia's list of approved sureties administered by the State Insurance Commissioner, or the U.S. Treasury's list of approved bond sureties (Circular 570).
27. **Performance and Payment Bonds:** Prior to execution of a contract, the successful bidder shall submit performance and payment bonds each equal to 100 percent of the contract value, provided by a surety which appears on Georgia's list of approved sureties administered by the State Insurance Commissioner, or the U.S. Treasury's list of approved bond sureties (Circular 570).

28. **Building Permits:** Work performed for the county requiring building permits by licensed contractors will not have permit fees assessed, although any re-inspection fees for disapproved inspections will be the responsibility of the contractor prior to final inspections and the Certificate of Occupancy or Certificate of Completion being issued.
29. **Unauthorized Performance:** The County will not compensate the contractor for work performed unless the work is authorized under the contract, as initially executed or as amended.
30. **Delivery Failures:** If the contractor fails to deliver contracted goods or services within the time specified in the contract, or fails to replace rejected items in a timely manner, the county shall have authority to make open-market purchases of comparable goods or services. The county shall have the right to invoice the contractor for any excess expenses incurred, or deduct such amount from monies owed the contractor. Such purchases shall be deducted from contracted quantities.
31. **Inspection and Acceptance of Deliveries:** The county reserves the right to inspect all goods and products delivered. The county will decide whether to accept or reject items delivered. The inspection shall be conclusive except with respect to latent defects, fraud, or such gross mistakes as shall amount to fraud. Final inspection resulting in acceptance or rejection of the products will be made as soon as practicable, but failure to inspect shall not be construed as a waiver by the county to claim reimbursement or damages for such products which are later found to be in non-conformance with specifications. Should public necessity demand it, the county reserves the right to use or consume articles delivered which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Director.
32. **Force Majeure:** Neither party shall be deemed to be in breach of the contract to the extent that performance of its obligations is delayed, restricted, or prevented by reason of any act of God, natural disaster, act of government, or any other act or condition beyond the reasonable control of the party in question.

Fayette County, Georgia
Checklist of Required Documents

*(Be Sure to Return This Checklist and
the Required Documents in the order listed below)*

ITB #1583-B: FIRE STATIONS 2 & 4 CONSTRUCTION

Company information – on the form provided _____

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1) _____

Bid Bond _____

Contractor's Experience Form _____

Base Bid Summary Sheets (00 41 00 – 1 & 2) _____

Bid Summary Form (00 41 00 – 3) _____

Bid Form (00 42 13 – 1, 2 & 4) _____

Alternate Form (00 43 23 – 2 & 3) _____

List of exceptions, if any – on the form provided _____

Addenda Acknowledgement (Bid Form 00 42 13 – 3) _____

COMPANY NAME: _____

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)

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

Federal Work Authorization User Identification Number

Date of Authorization

Name of Contractor

ITB #1583-B: FIRE STATIONS 2 & 4 CONSTRUCTION

Name of Project

FAYETTE COUNTY GEORGIA

Name of Public Employer

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

Executed on _____, _____, 2019 in (city) _____, (state) _____

Signature of Authorized Officer or Agent

Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME

ON THIS THE _____ DAY OF _____, 2019.

NOTARY PUBLIC

My Commission Expires:

ITB #1583-B: FIRE STATIONS 2 & 4 CONSTRUCTION

**EXCEPTIONS TO CONTRACT FOR FAYETTE COUNTY FIRE STATION No. 4
AND FAYETTE COUNTY FIRE STATION No. 2 NEW FACILITY**

If there are *ANY* exceptions or clarification(s) taken to the specifications of this bid, use this sheet and list the items you are taking an exception on. ANY exception(s) shall be explained in full.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

COMPANY NAME

ITB #1583-B: FIRE STATIONS 2 & 4 CONSTRUCTION

CONTRACTOR EXPERIENCE FORM

THIS IS TO CERTIFY pursuant to the Fayette County, GA Fire Stations 2 & 4 Construction bid specifications that _____, has proficiency in the construction of _____. This may be demonstrated by reference to the successful performance of similar work on the following four projects:

Projects 1, 2, 3 & 4 – Completed within past five years (i.e., since December 2013) and of similar scope and complexity to the Fire Stations 2 & 4 Construction.

(1) Name/Type of Project _____
Description _____

Owner _____
Total Construction Contract Amount _____
Date of Completion _____
Contact Name & Title _____
Phone Number _____
Email _____

(2) Name/Type of Project _____
Description _____

Owner _____
Total Construction Contract Amount _____
Date of Completion _____
Contact Name & Title _____
Phone Number _____
Email _____

(3) Name/Type of Project _____
Description _____

Owner _____
Total Construction Contract Amount _____
Date of Completion _____
Contact Name & Title _____
Phone Number _____
Email _____

(4) Name/Type of Project _____
Description _____

Owner _____
Total Construction Contract Amount _____
Date of Completion _____
Contact Name & Title _____
Phone Number _____
Email _____

Owner/President/CEO Certification

I certify the above information is true and accurate and is provided to satisfy minimum bidding requirements with respect to Contractor experience for Fire Stations 2 and 4 construction project.

This _____ day of _____, 2019.

Name of Company: _____

By: _____

Title: _____

ITB #1583-B: FIRE STATIONS 2 & 4 CONSTRUCTION

COMPANY INFORMATION

Company Name: _____

Physical Address: _____

Mailing Address (if different): _____

AUTHORIZED REPRESENTATIVE

Signature: _____

Printed or Typed Name: _____

Title: _____

Email Address: _____

Phone Number: _____ Fax Number: _____

PROJECT CONTACT PERSON

Name: _____

Title: _____

Office Number: _____ Cellular Number: _____

Email Address: _____

DOCUMENT 00 11 16 – INVITATION TO BID

DEADLINE: Thursday, February 7, 2019 at 3pm

An invitation to bid is hereby extended to the qualified bidders for the Fayette County Fire Station No. 4 and Fayette County Fire Station No. 2 including all specified equipment, finishes, materials, accessories, and labor.

All work shall be done in accordance with the bid documents (the Project Manual and Construction Documents) with the exception of future addenda if any, which will be available to all bidders. Addenda will be held on file at the Fayette County Purchasing Department.

All questions and request for information (RFI) correspondence shall be in written form addressed only from the General Contractor and directed to Natasha Duggan at the Fayette County Purchasing Department by 3 pm, Wednesday, January 30th, 2019.

Emails or fax should be addressed to:

Natasha Duggan Email: nduggan@fayettecountyga.gov
Fax: 770.719.5534
Office: 770.305.5420

Contract, if awarded, will be based on a Lump Sum Contract based on AIA A101. All bids shall be lump sum and detailed as required in the bid form Section 00 41 00 of this document.

Scope of work will consist of all work indicated or addressed in the construction documents. If you have any questions regarding this scope of work, please notify Fayette County Purchasing Department prior to the final RFI date notated above.

Bidder must comply with the following:

- The Bid must state a date or time of Certificate of Occupancy. A \$500.00 per day penalty for liquidated damages will be assessed beginning at 12:00 midnight of this date and until a complete Certificate of Occupancy is obtained. Please note that there may be an extension of time allowed due to inclement weather. Proof of negative effect of days consisting of rainfall above the average daily amount for this area or other detrimental situations will be required. All decisions are at the discretion of the owner.
- A complete Bid will include a completed break down of costs on the form provided. This form may be recreated by the Bidder to facilitate the provision of this information. All line items must be included. The numbers on this sheet must match the base bid amount submitted.
- Once the contract has been awarded all Change Orders will be handled per AIA A101 (2007) Section 7.3.11. All change orders will be time and material plus a set overhead and profit percentage. This percentage will be 7.5% for the portion of the work self-performed by the General Contractor or 5% for the portion of the work performed by a sub-contractor. All deductive change orders will be cost of work plus the above percentages, unless approved by the architect. Architect must approve all

labor and wage rates, unit prices and rental and equipment usage rates. All change orders must be approved by the architect.

- A complete and acceptable bid must include the signed and notarized O.C.G.A. 13-10-91 Contractor Affidavit included in this manual.

END OF DOCUMENT

DOCUMENT 00 31 32 – GEOTECHNICAL DATA

STATION NO. 4

Site delivered in manner that meets requirements established by civil engineering drawings and should be adequate for all structural drawings.

STATION NO.2

There were no preliminary geotechnical reports or studies done for this project.

END OF GEOTECHNICAL DATA

BASE BID SUMMARY FOR: FAYETTE COUNTY FIRE STATION NO. 4 (1748.00)

A	General Conditions	Cost \$	Sub-total.	Proposed Subcontractors
101	Permits (BY OWNER)	0		
102	Mobilization and Field Office			
103	Performance Bond / 100% Material Payment Bond			
104	Project Insurance			
105	Payroll Taxes & Benefits			
106	Job Supervision			
107	Field Eng. / Layout /Construction Staking / Testing			
108	Equipment			
109	Expendables / Job Trailer / Toilets / Misc. Expenses			
110	Construction Utilities (Temporary)			
111	Construction Project Signage Allowance	\$1000.00		
112	General Clean-up & Disposal			
A	Subtotal			
B	Site Development			
202	Concrete Sidewalks, Drives and Aprons			
203	Erosion Control Maintenance Allowance	\$5,000		
204	Landscape Allowance	\$5,000		
205	Site Utilities Connections			
207	Curb & Gutter / Striping / Signage			
B	Subtotal			
C	Building Construction			
302	Concrete			
303	Masonry			
304	Steel			
305	Rough Carpentry, Framing, Ply-wood (including nailers and sheathing)			
306	Cabinetry/Millwork			
307	Batt Insulation			
308	PEMB: Structure, Wall Panels, Gutters, Downspouts, Siding, Ceiling, Insulation			
309	Flashing and Sheet Metal			
310	Waterproofing			
311	Cement Board Siding and Trim			
312	Caulking and Sealants			
313	Doors & Frames			
314	Door Finish Hardware			
315	Aluminum Storefront System			
316	Four Fold Apparatus Bay Doors			
317	Gerkin Windows			
318	Lighting Fixtures			
319	Gypsum Wall Board Assemblies			
320	Ceiling Assemblies (2x2) & GWB			
321	Carpet			
322	Rubber base			
323	Porcelain tile			
324	Resilient Flooring			
325	Epoxy floor covering			
326	Paint			
327	Fire Extinguishers and Accessories (Allow for Type A-B-C 10 lb.)			
328	Toilet Accessories			
329	Plumbing			
330	HVAC			
331	Electrical			
332	Special Equipment			
333	Specialties, Misc. Items			
334	Misc Finishes			
C	Subtotal			
D	Recap of Construction Costs			
	General Conditions (101-112)			
	Site Development/Grading(201-207)			
	Building Construction (301-334)			
	Overhead & Profit			
	STATION 4 TOTAL BID			

BASE BID SUMMARY FOR: FAYETTE COUNTY FIRE STATION NO. 2 (1852.00)

A	General Conditions	Cost \$	Sub-total.	Proposed Subcontractors
101	Permits (BY OWNER)	0		
102	Mobilization and Field Office			
103	Performance Bond / 100% Material Payment Bond			
104	Project Insurance			
105	Payroll Taxes & Benefits			
106	Job Supervision			
107	Field Eng. / Layout /Construction Staking / Testing			
108	Equipment			
109	Expendables / Job Trailer / Toilets / Misc. Expenses			
110	Construction Utilities (Temporary)			
111	Construction Project Signage Allowance	\$1000.00		
112	General Clean-up & Disposal			
A	Subtotal			
B	Site Development			
201	Site Clearing			
202	Concrete Sidewalks, Drives and Aprons			
203	Erosion Control Maintenance Allowance	\$5,000		
204	Landscape Allowance	\$5,000		
205	Site Utilities Connections			
206	Septic/Sewer System			
207	Curb & Gutter / Striping / Signage / Asphalt			
B	Subtotal			
C	Building Construction			
302	Concrete			
303	Masonry			
304	Steel			
305	Rough Carpentry, Framing, Ply-wood (including nailers and sheathing)			
306	Cabinetry/Millwork			
307	Batt Insulation			
308	PEMB: Structure, Wall Panels, Gutters, Downspouts, Siding, Ceiling, Insulation			
309	Flashing and Sheet Metal			
310	Waterproofing			
311	Cement Board Siding and Trim			
312	Caulking and Sealants			
313	Doors & Frames			
314	Door Finish Hardware			
315	Aluminum Storefront System			
316	Four Fold Apparatus Bay Doors			
317	Gerkin Windows			
318	Lighting Fixtures			
319	Gypsum Wall Board Assemblies			
320	Ceiling Assemblies (2x2) & GWB			
321	Carpet			
322	Rubber base			
323	Porcelain tile			
324	Resilient Flooring			
325	Epoxy floor covering			
326	Paint			
327	Fire Extinguishers and Accessories (Allow for Type A-B-C 10 lb.)			
328	Toilet Accessories			
329	Plumbing			
330	HVAC			
331	Electrical			
332	Special Equipment			
333	Specialties, Misc. Items			
334	Misc Finishes			
C	Subtotal			
D	Recap of Construction Costs			
	General Conditions (101-112)			
	Site Development/Grading(201-207)			
	Building Construction (301-334)			
	Overhead & Profit			
	STATION 2 TOTAL BID			

K. A. Oldham Design, Inc.

Project Number: 1852.00

Project Number: 1748.00

Fayette County

Fire Station No. 2

Fire Station No. 4

TOTAL BID SUMMARY FOR: FAYETTE COUNTY FIRE STATION NO. 2 AND STATION NO. 4

	STATION 4 TOTAL BID			
	STATION 2 TOTAL BID			
	STATION 2 AND STATION 4 TOTAL BID			

DOCUMENT 00 42 13 – BID FORM

This Bid Submitted by: _____

Address: _____

Telephone: _____

Email: _____

DATE: _____

Dear Sir or Madam:

The undersigned Bidder declares that he has read and understands the Architectural drawings dated 09/27/18, and the Project Manual identified herein as the Bid Documents, for the above listed work as prepared by K. A. Oldham Design, Inc. of Newnan, Georgia. The undersigned Bidder further declares that he/she has examined the site of work and informed himself/herself fully in regard to all conditions pertaining to the place where the work is to be done.

1852 FIRE STATION #2

The undersigned Bidder declares that he/she shall furnish all permits, work, services, and materials, including equipment and accessories, called for or implied in the above-mentioned Construction Documents and that he/she will accept as complete compensation therefore the sum of

_____ DOLLARS (\$ _____) which is hereinafter referred to as the Base Bid. No partial bids will be accepted.

Estimated time of completion: _____ consecutive calendar days

The undersigned Bidder further declares that, if awarded the Contract, he/she shall begin all work associated with the project within the constraints set forth by the owner at the location listed above by _____ consecutive calendar days from the issuance of Notice to Proceed.

1748 FIRE STATION #4

The undersigned Bidder declares that he/she shall furnish all permits, work, services, and materials, including equipment and accessories, called for or implied in the above-mentioned Construction Documents and that he/she will accept as complete compensation therefore the sum of

_____ DOLLARS (\$ _____) which is hereinafter referred to as the Base Bid. No partial bids will be accepted.

Estimated time of completion: _____ consecutive calendar days

The undersigned Bidder further declares that, if awarded the Contract, he/she shall begin all work associated with the project within the constraints set forth by the owner at the location listed above by _____ consecutive calendar days from the issuance of Notice to Proceed.

ADDENDA ACKNOWLEDGEMENT

There are no addenda as of January 3, 2019. Use form below for future addenda as they occur.

The receipt of the following addendum or addenda is acknowledged:

Addendum Number: _____ Date: _____

Addendum Number: _____ Date: _____

Addendum Number: _____ Date: _____

Addendum Number: _____ Date: _____

Addendum Number: _____ Date: _____

ADDENDUM RECEIPT:

WITNESSED: _____

If this bid is accepted and the undersigned Bidder should fail to enter into the contract, as fore stated, within seven (7) days from the date of mailing to him a letter of written notice, at the address herein, noting that the contract is ready for signature, the Owner may, at his option, declare that the Bidder has abandoned the Contract and this bid and its acceptance is null and void.

The undersigned Bidder hereby agrees that his bid shall not be withdrawn within sixty (60) days from the time set for the receipt of the Bid Package.

The undersigned Bidder hereunder acknowledges the receipt of all Addenda listed on the previous pages labeled under the heading ADDENDA ACKNOWLEDGMENT.

The undersigned proposer further states that:

*****All work, materials, building components and labor are in strict compliance and accordance with the Construction Documents listed above and prepared by K.A. Oldham Design, Inc. and noted as Commission No. 1748.00 and No. 1852.00 unless stated on the attached page labeled EXCEPTIONS TO CONTRACT FOR FAYETTE COUNTY FIRE STATION NO. 4 AND FAYETTE COUNTY FIRE STATION NO.2 NEW FACILITY.*****

THIS SIGNATURE VALIDATES ALL BID NUMBERS ABOVE.

SIGNED: _____ TITLE: _____ DATE: _____

COMPANY: _____

ADDRESS: _____

END OF BID FORM

SECTION 00 43 23 - ALTERNATES FORM

1.1 BID INFORMATION

- A. Project Name: FAYETTE COUNTY FIRE STATION NO. 4 NEW FACILITY
Project location: 278 MCELROY ROAD FAYETTEVILLE, GA 30214
- B. Project Name: FAYETTE COUNTY FIRE STATION NO. 2 NEW FACILITY
Project location: 1330 HWY. 92 NORTH FAYETTEVILLE, GA 30214

1.2 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form

1.3 DESCRIPTION

- A. The undersigned Bidder proposes the amount below be added to or deducted from the Base Bid if particular alternates are accepted by Owner. Amounts listed for each alternate include costs of related coordination, modification, or adjustment.
- B. If the alternate does not affect the Contract Sum, the Bidder shall indicate "NO CHANGE."
- C. If the alternate does not affect the Work of this Contract, the Bidder shall indicate "NOT APPLICABLE."
- D. The Bidder shall be responsible for determining from the Contract Documents the affects of each alternate on the Contract Time and the Contract Sum.
- E. Owner reserves the right to accept or reject any alternate, in any order, and to award or amend the Contract accordingly after the award of the contract.
- F. Acceptance or non-acceptance of any alternates by the Owner shall have no affect on the Contract Time unless the "Schedule of Alternates" Article below provides a formatted space for the adjustment of the Contract Time.

1.4 SCHEDULE OF ALTERNATES

THE ALTERNATES LISTED BELOW SHOULD BE INCLUDED IN YOUR PROPOSAL PACKAGE. THEY ARE NOT A PART OF THE BASE BID.

ALTERNATES FOR 1852 STATION NO. 2**Alternate No. 1: (DEDUCT)**

Provide deductive costs associated with the Four-Fold Apparatus Bay doors by Door Engineering, replaced by aluminum and full glass, insulated Overhead roll-up doors.

____ NO CHANGE ____ NOT APPLICABLE

_____ DOLLARS (\$ _____)

____ ADD ____ DEDUCT ____ calendar days to adjust the Contract Time for this alternate

ALTERNATES FOR 1748 STATION NO. 4**Alternate No. 1: (DEDUCT)**

Provide deductive costs associated with the Four-Fold Apparatus Bay doors by Door Engineering, replaced by aluminum and full glass, insulated Overhead roll-up doors.

____ NO CHANGE ____ NOT APPLICABLE

_____ DOLLARS (\$ _____)

____ ADD ____ DEDUCT ____ calendar days to adjust the Contract Time for this alternate

BOTH STATIONS**Alternate No. 3: (DEDUCT)**

If Fayette County chooses to award both Fire Stations to a single General Contractor, what is the reduction in Overhead and Profit?

____ NO CHANGE ____ NOT APPLICABLE

_____ DOLLARS (\$ _____)

____ ADD ____ DEDUCT ____ calendar days to adjust the Contract Time for this alternate

BOTH STATIONS**Alternate No. 4: (DEDUCT)**

If Fayette County chooses to award both Fire Stations to a single General Contractor, what is the reduction in General Conditions?

____ NO CHANGE ____ NOT APPLICABLE

_____ DOLLARS (\$ _____)

____ ADD ____ DEDUCT ____ calendar days to adjust the Contract Time for this alternate

1.5 SUBMISSION OF BID SUPPLEMENT

A. Respectfully submitted this _____ day of _____, 20_____.

B. Submitted By: _____ (bidding firm or corporation)

C. Authorized Signature: _____

D. Signed by: _____ (type or print)

E. Title: _____ (owner/partner/president/vice president)

END OF ALTERNATES FORM 00 43 23

DOCUMENT 00 52 00 – AGREEMENT FORM

"The Standard Form of Agreement between Owner and Contractor," AIA Document A101, dated 1997, of the American Institute of Architects, is included immediately following this page. If AIA Document A101 is not included, it is hereby made a part of these documents to the same extent as if herein written out in full. A copy is on file at the Architects office and may be examined during normal working hours.

Paragraph 1.5 of the Typical AIA A201 General Conditions of the Contract for Construction shall be amended by the prior formal agreement between the Architect and Fayette County stating that the County will obtain ownership of the CAD files for the project at its completion. Once a contract is awarded all communication regarding the drawings and project documents shall come through the Architect.

END OF AGREEMENT FORM DOCUMENT 00 52 00

DOCUMENT 00 72 00 – GENERAL CONDITIONS

"The General Conditions of the Contract for Construction," AIA Document A201, dated 2007, of the American Institute of Architects, is included immediately following this page. If AIA Document A201 is not included, it is hereby made a part of these documents to the same extent as if herein written out in full. A copy is on file at the Architects office and may be examined during normal working hours.

END OF GENERAL CONDITIONS DOCUMENT 00 72 00



AIA® Document A101™ – 2007

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

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

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

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

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

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

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

AIA Document A201™–2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS
- 10 INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

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

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

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

Init.

/

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than () days from the date of commencement, or as follows:

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

ARTICLE 4 CONTRACT SUM

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

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

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

Item	Units and Limitations	Price per Unit (\$0.00)
Item		Price

§ 4.4 Allowances included in the Contract Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

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

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

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

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

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

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

1. Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent ()%. Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction.
2. Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of percent ()%.
3. Subtract the aggregate of previous payments made by the Owner; and
4. Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

1. Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)
2. Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

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

§ 5.2 Final Payment

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

1. the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and
2. a final Certificate for Payment has been issued by the Architect.

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

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:

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

- ☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2007
- ☐ Litigation in a court of competent jurisdiction
- ☐ Other: *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

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

§ 8.3 The Owner's representative:

(Name, address and other information)

§ 8.4 The Contractor's representative:

(Name, address and other information)

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

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
----------	-------	------	-------

§ 9.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages
---------	-------	------	-------

§ 9.1.5 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date
--------	-------	------

§ 9.1.6 The Addenda, if any:

Number	Date	Pages
--------	------	-------

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

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

- 1** AIA Document E201™–2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:
- 2** Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor’s bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201–2007.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201–2007.)

Type of Insurance or Bond

Limit of Liability or Bond Amount (\$0.00)

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

OWNER (Signature)

CONTRACTOR (Signature)

(Printed name and title)

(Printed name and title)

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

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AIA[®]

Document A201™ – 2017

General Conditions of the Contract for Construction

for the following **PROJECT**:

(Name and location or address)

THE OWNER:

(Name, legal status and address)

THE ARCHITECT:

(Name, legal status and address)

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

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

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

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

§ 1.1.2 The Contract

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

§ 1.1.3 The Work

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

§ 1.1.4 The Project

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

§ 1.1.5 The Drawings

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

§ 1.1.6 The Specifications

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

§ 1.1.7 Instruments of Service

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

§ 1.1.8 Initial Decision Maker

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

§ 1.2 Correlation and Intent of the Contract Documents

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

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

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

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

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

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

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

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

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

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

§ 1.6 Notice

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

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

§ 1.7 Digital Data Use and Transmission

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

§ 1.8 Building Information Models Use and Reliance

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

information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

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

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

§ 2.2 Evidence of the Owner's Financial Arrangements

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

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

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

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

§ 2.3 Information and Services Required of the Owner

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

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

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

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

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

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

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

§ 2.4 Owner's Right to Stop the Work

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

§ 2.5 Owner's Right to Carry Out the Work

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

ARTICLE 3 CONTRACTOR

§ 3.1 General

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

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

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

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

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

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

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

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

§ 3.3 Supervision and Construction Procedures

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

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

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

§ 3.4 Labor and Materials

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

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

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

§ 3.5 Warranty

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

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

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

§ 3.6 Taxes

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

§ 3.7 Permits, Fees, Notices and Compliance with Laws

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

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

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

§ 3.7.4 Concealed or Unknown Conditions

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

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

§ 3.8 Allowances

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

§ 3.8.2 Unless otherwise provided in the Contract Documents,

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

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

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

§ 3.9 Superintendent

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

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

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

§ 3.10 Contractor's Construction and Submittal Schedules

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

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

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

§ 3.11 Documents and Samples at the Site

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

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

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

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

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

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

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

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

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

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

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

time and in the form specified by the Architect.

§ 3.13 Use of Site

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

§ 3.14 Cutting and Patching

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

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

§ 3.15 Cleaning Up

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

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

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

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

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

ARTICLE 4 ARCHITECT

§ 4.1 General

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

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

§ 4.2 Administration of the Contract

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

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

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

§ 4.2.4 Communications

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

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

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

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

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

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

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

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

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

§ 5.3 Subcontractual Relations

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

§ 5.4 Contingent Assignment of Subcontracts

- § 5.4.1** Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that
1. assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
 2. assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate

Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order. Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

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1. The change in the Work;
2. The amount of the adjustment, if any, in the Contract Sum; and
3. The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

1. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
2. Unit prices stated in the Contract Documents or subsequently agreed upon;
3. Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
4. As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

1. Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
2. Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
3. Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
4. Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
5. Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable

by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The

foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers

to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not

constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- 1.** liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- 2.** failure of the Work to comply with the requirements of the Contract Documents;
- 3.** terms of special warranties required by the Contract Documents; or
- 4.** audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- 1.** employees on the Work and other persons who may be affected thereby;
- 2.** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- 3.** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the

endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The

Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgage clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the

Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
2. An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
3. Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
4. The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

1. repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
2. fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
3. repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
4. otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

1. Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
2. Accept assignment of subcontracts pursuant to Section 5.4; and
3. Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

1. that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
2. that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

1. cease operations as directed by the Owner in the notice;
2. take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
3. except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section

15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

1. damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons;
2. damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party; (2) reject the Claim in whole or in part; (3) approve the Claim; (4) suggest a compromise; or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data; (2) advise the Initial Decision Maker when the response or supporting data will be furnished; or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing.

delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly

consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 PROJECT INFORMATION

- A. Project: Fayette County Fire Department Station No. 4 and Station No. 2
 - 1. Project Location: Station No. 4 - 278 McElroy Road, Fayetteville, GA 30214
 - 2. Project Location: Station No. 2 - 1330 Hwy. 92 North, Fayetteville, GA 30214
- B. Owner: Fayette County Fire Department
140 Stonewall Avenue, Fayetteville, GA 30214
- C. Architect: K. A. Oldham Design, Inc.
75 Jackson Street Suite 401, Newnan, GA 30263
- D. Contractor: TBD

STATION NO. 4

- E. The Work at Station No. 4 (1748.00) consists of all work noted in the Bid Documents and any subsequent Addenda unless otherwise noted in writing. The goal of this project is the construction of a Fire Station on a pre-prepared site. Expectations are as follows:
1. Construct building as depicted on the construction documents.
 2. Contractor will be responsible for
 - a. any sidewalk paving.
 - b. connecting utilities to the building.
 - c. drive isle paving.
 - d. final landscaping.
 - e. all utility connections including sprinkler line (fire main) up to 5'-0" outside of the building pad.
 - f. coordination with all applicable utility companies.
 - g. all curb and gutter to 5' outside the building footprint.
 - h. preparation of the building pad by adding approximately 4" of graded aggregate base below conditioned space 4" slab.
 - i. maintenance of site stabilization. Landscape contractor will coordinate and be responsible for removal at appropriate time.
 - j. NPDES monitoring for the duration of the project.
 - k. subgrade and other special testing as required by the bid documents and specifications.
 3. Contractor shall coordinate and clarify paving strategy with the Owner and the Architect. It is assumed that no final drive isle paving will be conducted until the Building construction is nearing completion. An allowance for replacement of spoiled stone base is included.
- F. Owner-Furnished Items: The following products will be furnished by Owner:
1. Prepared site with all utilities within 5'-0" of the building pad. Curb and gutter to within 5'-0" of the building, graded aggregate base to within 1/10th of the required subgrade elevation except the area under the conditioned space of building which is 4" lower than required.
 2. Erosion control measures in place per civil drawings.
 3. Correctly sized detention pond.
 4. Septic system per permitted drawings.
 5. Overall site graded to match permitted civil drawings. Please note fine grading for landscaping will be required.
 6. Bunk room, office, and day room furniture will be furnished by Owner and shall be installed by Contractor as part of the Work.

STATION NO. 2

G. The Work at Station No. 2 (1852.00) consists of all work noted in the Bid Documents and any subsequent Addenda unless otherwise noted in writing. The goal of this project is to prepare the site and all utilities as well as the construction of a Fire Station. Expectations are as follows:

1. Construct building as depicted on the construction documents.
2. Contractor will be responsible for
 - a. all site work per civil drawings
 - b. prepared site with all utilities
 - c. erosion control measures in place per civil drawings
 - d. Correctly sized detention pond
 - e. septic system per permitted drawings
 - f. overall site graded to match permitted civil drawings. Please note fine grading for landscaping will be required.
 - g. all sidewalk paving.
 - h. connecting utilities to the building.
 - i. drive isle paving.
 - j. final landscaping.
 - k. all utility connections including sprinkler line (fire main)
 - l. coordination with all applicable utility companies.
 - m. all curb and gutter
 - n. preparation of the building pad by adding approximately 4" of graded aggregate base below conditioned space 4" slab.
 - o. maintenance of site stabilization. Landscape contractor will coordinate and be responsible for removal at appropriate time.
 - p. NPDES monitoring for the duration of the project.
 - q. subgrade and other special testing as required by the bid documents and specifications.
3. Contractor shall coordinate and clarify paving strategy with the Owner and the Architect. It is assumed that no final drive isle paving will be conducted until the Building construction is nearing completion. An allowance for replacement of spoiled stone base is included.

H. Owner-Furnished Items: The following products will be furnished by Owner:

1. Bunk room, office, and day room furniture will be furnished by Owner and shall be installed by Contractor as part of the Work.

I. Work Under Separate Contracts:

1. Station Exterior Signage.

1.2 WORK RESTRICTIONS

A. Contractor's Use of Premises: During construction, Contractor will have full use of site and building indicated. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project.

1. It should be understood that Station No. 4 is at the intersection of two busy roads. Interruption of traffic should be limited. Any interruption should be coordinated with the Owner prior to its occurrence.
2. It should be understood that Station No. 2 is on a State Highway. Interruption of traffic should be limited. Any interruption should be coordinated with the Owner prior to its occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. If requested by the Owner, obtain three proposals for each allowance and submit to Architect, in the form specified for Change Orders, with recommendations. Purchase products and systems selected by Architect.
- D. Advise Architect of the date when selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- E. Submit invoices to show cost and actual quantities of materials delivered. Reconciliation of allowance amounts with actual costs will be by Change Order

1.2 UNIT PRICES

- A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased. Bidders shall indicate on the bid form unit prices as described in Part 3 of this section.
- B. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

1.3 ALTERNATES

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 SUBSTITUTION PROCEDURES

- A. Substitutions include changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor after award of the Contract.
1. Substitution Request Form: Use CSI Form 13.1A
 2. Submit (3) three copies of each request for product substitution.
 3. Submit requests within (21) twenty-one days before critical order or delivery date to avoid extension of time.
 4. Do not submit unapproved substitutions on Shop Drawings or other submittals.
 5. Identify product to be replaced and show compliance with requirements for substitutions. Include a detailed comparison of significant qualities of proposed substitution with those of the Work specified, a list of changes needed to other parts of the Work required to accommodate proposed substitution, and any proposed changes in the Contract Sum or the Contract Time should the substitution be accepted.
 6. Architect will review the proposed substitution and notify Contractor of its acceptance by Change Order. Response regarding non-acceptance will also be given to contractor.

1.5 CONTRACT MODIFICATION PROCEDURES

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.
- B. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work.
1. Proposal Requests are not instructions either to stop work in progress or to execute the proposed change.
 2. Within time specified in Proposal Request or (20) twenty days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time.
- C. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
- D. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701, for all changes to the Contract Sum or the Contract Time. See instructions to bidders for more detailed pricing procedure and directions.
- E. Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- F. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.6 PAYMENT PROCEDURES

- A. Submit a Schedule of Values at least (10) ten days before the initial Application for Payment. Break down the Contract Sum into at least one line item for each Specification Section in the Project Manual table of contents. Coordinate the schedule of values with Contractor's construction schedule.
 - 1. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 - 2. Provide separate line items in the schedule of values for initial cost of materials and for total installed value of that part of the Work.
- B. Application for Payment Forms: Use OFFICIAL AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- C. Submit (3) three copies of each application for payment according to the schedule established in Owner/Contractor Agreement.
 - 1. A digital draft version in PDF form may be submitted for review prior to the expected submission date.
 - 2. With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 - 3. Submit final Application for Payment with or proceeded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 - a. Include insurance certificates, proof that taxes, fees, and similar obligations were paid, and evidence that claims have been settled.
 - b. Include consent of surety to final payment on AIA Document G707.
 - c. Submit final meter readings for utilities, a record of stored fuel, and similar data as of the date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION****3.1 SCHEDULE OF ALLOWANCES**

- A. Project Stone replacement: Allow the sum of \$10,000 for materials and labor to replace spoiled stone base.
- B. Landscape, Erosion control management and interior signage.

3.2 SCHEDULE OF UNIT PRICES

- A. All PRICE line items as requested on Bid Form

END OF SECTION 01 20 00

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

- A. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work.
- B. Requests for Information (RFIs): On discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI. Use forms acceptable to Architect and Owner.
- C. A Pre-Construction meeting shall be held at a location to be announced prior to commencement of the Work.
- D. Schedule and conduct progress meetings at Project site at biweekly intervals. Notify Owner and Architect of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current progress or involved in planning, coordination, or performance of future activities.
 - 1. Record minutes and distribute to everyone concerned, including Owner and Architect.

1.2 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 2. Submit (4) four copies of each action submittal. Architect will return a minimum of 2 copies.
 - 3. Submit (3) three copies of each informational submittal. Architect will not return copies.
 - 4. Architect will discard submittals received from sources other than Contractor.
- B. Place a permanent label or title block on each submittal for identification. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken. Include the following information on the label:
 - 1. Project name.
 - 2. Date.
 - 3. Name and address of Contractor.
 - 4. Name and address of subcontractor or supplier.
 - 5. Number and title of appropriate Specification Section.

- C. Identify deviations from the Contract Documents on submittals.
- D. Contractor's Construction Schedule Submittal Procedure: Submit (2) two copies of schedule at least (5) five days prior to pre-construction meeting.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. Product Data: Mark each copy to show applicable products and options. Include the following:
 - 1. Manufacturer's written recommendations, product specifications, and installation instructions.
 - 2. Wiring diagrams showing factory-installed wiring.
 - 3. Printed performance curves and operational range diagrams.
 - 4. Testing by recognized testing agency.
 - 5. Compliance with specified standards and requirements.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Include the following:
 - 1. Dimensions and identification of products.
 - 2. Fabrication and installation drawings and roughing-in and setting diagrams.
 - 3. Wiring diagrams showing field-installed wiring.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurement.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.
 - 1. If variation is inherent in material or product, submit at least (5) five sets of paired units that show variations.

2.2 INFORMATIONAL SUBMITTALS

- A. Qualification Data: Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

2.3 DELEGATED DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit (5) five copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type schedule within (5) five days prior to pre-construction meeting
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Architect will review each action submittal, make marks to indicate corrections or modifications required, will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

3.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Time Frame: If preliminary schedule requires revision after review, submit revised schedule within 10 days.

- B. Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. As the Work progresses, indicate Actual Completion percentage for each activity.
- C. Distribute copies of approved schedule to Owner, Architect, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.

END OF SECTION 01 30 00

SECTION 01 33 00 – DIGITAL SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals. All submittals must be received in digital format with the exception of physical samples and material submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require the Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require the Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual specification sections as informational submittals.
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery to establish dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections. Send digital submittal schedule to Architect within 30 days from

the notice to proceed. Schedule should be in a format which can be modified by the Architect.

1. Coordinate the Submittal Schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently in accordance with the complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format.
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action, informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled dates for installation.
 - i. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. All submittals (with the exception of physical samples) shall be made in digital format (PDF) unless otherwise indicated. Any references to paper submittals in the technical specification sections shall be revised to indicate digital submittal format. All digital submittals shall be made through email or posted to the project FTP site and an email sent to indicate that it has been posted for review. Submittals will not be logged in when posted to the FTP unless notification (email or written) is received by the Architect indicating that it has been posted. Upon notification of posting and verification that the indicated information has been posted, the submittal will be logged in on the schedule and the review time will start on this date.

Coordination: Coordinate preparation and processing of submittals with the performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

- a. Submit Operation and Maintenance Manuals concurrent with action submittal.
 - b. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on the Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise the Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Re-submittal Review: Allow 15 days for review of each re-submittal.
 4. Sequential Review: Where sequential review of submittals by the Architect's consultants, the Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
- C. Identification and Information: Place a permanent label or title block on each submittal item for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. All Contractor notes and marks shall be GREEN in color; all Architect's notes and marks shall be RED.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Construction Manager (if applicable).
 - e. Name of Contractor.
 - f. Name of subcontractor.
 - g. Name of manufacturer.
 - h. Submittal number including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a sequential number (e.g., 061000-001). Re-submittals shall include an additional number followed by a decimal (e.g., 061000-001.01).
 - i. Drawing number and detail references, as appropriate.
 - j. Location(s) where product is to be installed, as appropriate.
 - k. Other necessary identification.

- D. Options: Identify options requiring selection by the Architect.
- E. Deviations: Identify deviations from the Contract Documents on submittals
- F. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. The Design Professional will return submittals, without review, received from sources other than the Contractor.
 - 1. Transmittal Form: Use the Contractor's office form.
 - 2. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Indication of full or partial submittal.
 - j. Drawing number and detail references, as appropriate.
 - k. Transmittal numbered consecutively.
 - l. Submittal and transmittal distribution record.
 - m. Remarks.
 - n. Signature of transmitter.
 - 3. On an attached separate sheet, prepared on the Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by the Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- G. Re-submittals: Make re-submittals in same form and format.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from the Architect's action stamp.
- H. Distribution: Furnish digital copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, and installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals that are marked with approval notation from the Architect's action stamp.

PART 2 - PRODUCTS

2.1 DIGITAL SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and provide submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections. All required submittals shall be made in a digital PDF format.
1. Any reference to paper copies of submittals within the individual specification sections shall be modified to reference the digital PDF documents with the exception of physical samples. For all specifications requiring physical samples, contractor shall submit a minimum of four (4) physical samples and as required by the individual specification sections.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule. Assemble each submittal individually and transmit each submittal using a digital PDF format transmittal form.
 3. Digital transmittals may be made via email or through an approved FTP site. Any submittal posted on an approved FTP site must be accompanied by a digital PDF email transmittal with delivery receipt for documentation.
 4. Contractor shall review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Mark with digital approval stamp (in GREEN) before submitting to Architect. Architect will provide review comments on digital PDF document and digital action stamp (in RED).
 5. Contractor shall maintain a record of each submittal on-site at all times. On-site copies of the submittals may be digital PDF documents or printed hard copies at the contractor's discretion. Submittal shall be made available to Architect or owner at all times.
 6. Closeout Submittals and Maintenance Material Submittals: Submit as digital PDF documents on flash drive or CD/DVD.
 7. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Permits, Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
 8. Test and Inspection Reports Submittals: Submit as digital documents.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Submittal Package number and Submittal Item number.
 - b. Manufacturer's catalog cuts.
 - c. Manufacturer's product specifications.

- d. Manufacturer's written recommendations and installation instructions.
 - e. Standard color charts.
 - f. Statement of compliance with specified referenced standards.
 - g. Testing by recognized testing agency.
 - h. Application of testing agency labels and seals.
 - i. Notation of coordination requirements.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data concurrent with Samples.
 6. Submit Product Data in electronic (PDF) file format.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Submittal Package number and Submittal Item number.
 - b. Identification of products.
 - c. Schedules.
 - d. Compliance with specified standards.
 - e. Notation of coordination requirements.
 - f. Notation of dimensions established by field measurement.
 - g. Relationship and attachment to adjoining construction clearly indicated.
 - h. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Submittal Package number and Submittal Item number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: For turnover purpose, submit four (4) full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. The Architect will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit four (4) sets of Samples. The Architect will return submittal with options selected.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
 4. Submit subcontract list in PDF electronic file.

- F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- H. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- I. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- J. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- L. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

PART 11 - EXECUTION

3.1 CONTRACTORS REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp (make notes and marks in GREEN) before submitting to the Architect.
- B. Approval Stamp: Stamp each submittal with a digital approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of the Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
- C. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear the Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks in RED to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Informational Submittals: Architect will review each submittal and will return it if it does not comply with requirements.
- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from the Architect.
- E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Testing and inspecting services shall be performed by independent testing agencies under contract with the owner. Contractor is responsible for compensating, scheduling times for tests, inspections, and obtaining samples and notifying testing agency.
- B. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements, comply with the most stringent requirement. Refer uncertainties to Architect for a decision.
- C. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum. The actual installation may exceed the minimum within reasonable limits. Indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision.
- D. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 6. Names of individuals making tests and inspections.
 - 7. Description of the Work and test and inspection method.
 - 8. Complete test or inspection data, test and inspection results, an interpretation of test results, and comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 9. Name and signature of laboratory inspector.
 - 10. Recommendations on retesting and reinspecting.
- E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, notices, receipts for fee payments, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- F. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated; and where required by authorities having jurisdiction, that is acceptable to authorities.

- G. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents. No additional time will be given for any additional testing required by such non-compliance.
- H. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Promptly notify Architect and Contractor of irregularities or deficiencies in the Work observed during performance of its services.
 - 2. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
 - 3. Do not perform any duties of Contractor.
- I. Associated Services: Cooperate with testing agencies and provide reasonable auxiliary services as requested. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Security and protection for samples and for testing and inspecting equipment.
- J. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- K. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction.
- L. Special Tests and Inspections: Conducted by a qualified testing agency or special inspector as required by authorities having jurisdiction, as indicated in individual Specification Sections.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 40 00

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 GENRAL REQUIREMENTS

- A. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- B. Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute

AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	Association of the Wall and Ceiling Industry
AWCMA	American Window Covering Manufacturers Association (Now WCMA)
AWI	Architectural Woodwork Institute
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association)
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI, Inc.
BIFMA	BIFMA International

	(Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CEA	Consumer Electronics Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet and Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association (Electrostatic Discharge Association)

ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA)
FM Approvals	FM Approvals LLC
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Part of GSI)
GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation (Now BWF)
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.

ISO	International Organization for Standardization (Available from ANSI)
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA (Now ETL SEMCO)
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association

NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NOMMA	National Ornamental & Miscellaneous Metals Association
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Now ITS)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute

SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc. (Now TCNA)
TCNA	Tile Council of North America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USGBC	U.S. Green Building Council

USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WMMPA	Wood Moulding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Use Charges: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated.
- B. Erosion and Sedimentation Control Plan: Submit plan showing compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- C. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Not used.

2.2 TEMPORARY FACILITIES

- A. Field offices, storage and fabrication sheds, and other support facilities as necessary for construction operations are at the Contractors discretion. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
- C. Heating and Cooling: Provide temporary heating and cooling required for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- D. Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

3.2 SUPPORT FACILITIES INSTALLATION

- A. Install project identification and other signs in locations approved by Owner to inform the public and persons seeking entrance to Project.
 - 1. Illustration and information for an 8 ft x 4 ft project sign will be provided by architect.
- B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

- D. Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
- E. Install and maintain temporary fire-protection facilities. Comply with NFPA 241.

3.4 MOISTURE AND MOLD CONTROL

- A. Before installation of weather barriers, protect materials from water damage and keep porous and organic materials from coming into prolonged contact with concrete.
- B. After installation of weather barriers but before full enclosure and conditioning of building, protect as follows:
 - 1. Do not load or install drywall or porous materials into partially enclosed building.
 - 2. Discard water-damaged and wet material and material that begins to grow mold.
 - 3. Allow installed wet materials adequate time to dry before being enclosed.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion.
- C. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- B. Product Substitutions: Substitutions including changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor after award of the Contract
 - 1. Submit (3) copies of each request for product substitution
 - 2. Submit requests a minimum of 21 days before critical order or delivery date to avoid extension of time
 - 3. Do not submit unapproved substitutions on Shop Drawings or other submittals
 - 4. Identify product to be replaced and show compliance with requirements for comparable product requests. The following information should be included in each substitution request as applicable:
 - a) Coordination information, including a list of changes or modification needed to other parts of the Work and to construction performed by the Owner and separate contractors, that will be necessary to accommodate the proposed substitution
 - b) Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - c) Product Data, including drawings and descriptions of products and fabrication and installation procedures
 - d) Samples, where applicable or requested
 - e) List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners
 - f) Material test reports from a qualified testing agency indicating and interpreting test results for compliance and requirements indicated
 - g) Research/evaluation reports evidencing compliance with building code in effect for the project
 - h) Include any changes to overall construction schedule if the proposed substitution is accepted.
 - i) Complete breakdown of costs indicating the cost amount to be added to or deducted from the Contract Sum in the proposed substitution is accepted
 - j) Contractor's certification that proposed substitution complies with requirements in the contract documents and is appropriate for application indicated
 - k) Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

5. Architect will review the proposed substitution and notify Contractor of its acceptance or rejection by change order. Use product specified if the Architect does not issue a decision on use of a comparable product request.
- C. Comparable Product Requests:
1. Submit (3) copies of each request for comparable product. Do not submit unapproved products on Shop Drawings or other submittals.
 2. Identify product to be replaced and show compliance with requirements for comparable product requests. Include a detailed comparison of significant qualities of proposed product with those of the Work specified
 3. Architect will review the proposed product and notify Contractor of its acceptance or rejection.
- D. Basis-of-Design Product Specification Submittal: Show compliance with requirements.
- E. Compatibility of Options: If Contractor is given option of selecting between two or more products, select product compatible with products previously selected.
- F. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 4. Store materials in a manner that will not endanger Project structure.
 5. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
- G. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. Provide products that comply with the Contract Documents, are undamaged, and are new at the time of installation.
1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.

2. Descriptive, performance, and reference standard requirements in the Specifications establish clear characteristics of products.
- B. Product Selection Procedures:
1. Where Specifications name a single manufacturer and product, provide the named product that complies with requirements.
 2. Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
 3. Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 4. Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements for "comparable product requests" for consideration of an unnamed product.
 5. Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 6. Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements for "comparable product requests" for consideration of an unnamed manufacturer's product.
 7. Where Specifications name a single product, or refer to a product indicated on Drawings, as the "basis-of-design," provide the named product. Comply with provisions for "comparable product requests" for consideration of an unnamed product by another manufacturer.
- C. Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
- D. Unless otherwise indicated, Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

- A. Record Drawings: Maintain a set of prints of the Contract Drawings as record Drawings. Mark to show actual installation where installation varies from that shown originally.
 - 1. Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- B. Operation and Maintenance Data: Submit (2) two copies of manual. Organize data into three-ring binders with identification on front and spine of each binder, and envelopes for folded drawings. Include the following:
 - 1. Manufacturer's operation and maintenance documentation.
 - 2. Maintenance and service schedules.
 - 3. Maintenance service contracts.
 - 4. Emergency instructions.
 - 5. Spare parts list.
 - 6. Wiring diagrams.
 - 7. Copies of warranties.

1.2 CLOSEOUT PROCEDURES

- A. Substantial Completion: THERE WILL BE TWO SUBSTANTIAL COMPLETION PHASES. To be fair to the Site Development Contractor, there will be a substantial completion documented prior to the Pad being turned over to the Building Contractor. There will be a Substantial Completion at the culmination of the project once the entire scope of the project is completed. Before requesting Substantial Completion inspection, complete the following:
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, maintenance service agreements, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Submit record Drawings and Specifications, operation and maintenance manuals, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items.
 - 7. Make final changeover of permanent locks and deliver keys to Owner.
 - 8. Complete startup testing of systems.
 - 9. Remove temporary facilities and controls.

10. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 11. Complete final cleaning requirements, including touchup painting.
 12. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.
- C. Request inspection for Final Completion, once the following are complete:
1. Submit a copy of Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
 2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- D. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
- E. Submit a written request for final inspection for acceptance. On receipt of request, Architect will proceed with inspection or advise Contractor of unfulfilled requirements. Architect will prepare final Certificate for Payment after inspection or will advise Contractor of items that must be completed or corrected before certificate will be issued.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.
1. Verify compatibility with and suitability of substrates.
 2. Examine roughing-in for mechanical and electrical systems.
 3. Examine walls, floors, and roofs for suitable conditions.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Take field measurements as required to fit the Work properly. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication.

- D. Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- E. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

3.2 CONSTRUCTION LAYOUT AND FIELD ENGINEERING

- A. Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks.
- B. Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.
- C. Engage a land surveyor or professional engineer to prepare a final property survey showing significant features (real property) for Project.
 - 1. At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.3 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated. Make vertical work plumb and make horizontal work level.
 - 1. Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections to form hairline joints.
 - 2. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 3. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations.
- C. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- D. Use products, cleaners, and installation materials that are not considered hazardous.
- E. Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place. Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed.

3.4 CUTTING AND PATCHING

- A. Provide temporary support of work to be cut. Do not cut structural members or operational elements without prior written approval of Architect.

- B. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 - 1. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - 2. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

3.5 CLEANING

- A. Clean Project site and work areas daily, including common areas. Dispose of materials lawfully.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
 - 3. Remove debris from concealed spaces before enclosing the space.
- B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:
 - 1. Remove labels that are not permanent.
 - 2. Clean transparent materials, including mirrors. Remove excess glazing compounds. Replace chipped or broken glass.
 - 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Sweep concrete floors broom clean.
 - 4. Vacuum carpeted surfaces and wax resilient flooring.
 - 5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures, lamps, globes, and reflectors.
 - 6. Clean Project site, yard, and grounds, in areas disturbed by construction activities. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

3.6 DEMONSTRATION AND TRAINING

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system. Include a detailed review of the following:
 - 1. Include instruction for basis of system design and operational requirements, review of documentation, emergency procedures, operations, adjustments, troubleshooting, maintenance, and repairs.

END OF SECTION 01 70 00

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data concrete mix designs and submittals required by ACI 301.
- B. Ready-Mixed Concrete Producer Qualifications: ASTM C 94/C 94M.
- C. Comply with ACI 301, "Specification for Structural Concrete"; ACI 117, "Specifications for Tolerances for Concrete Construction and Materials"; and CRSI's "Manual of Standard Practice."

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Plain Steel Wire: ASTM A 82, as drawn.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- D. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
- E. Portland Cement: ASTM C 150, Type I or II.
- F. Fly Ash: ASTM C 618, Type C or F.
- G. Aggregates: ASTM C 33, uniformly graded.
- H. Synthetic Fiber: ASTM C 1116, Type III, polypropylene fibers, 1/2 to 1-1/2 inches long.
- I. Air-Entraining Admixture: ASTM C 260.
- J. Chemical Admixtures: ASTM C 494,. Do not use calcium chloride or admixtures containing calcium chloride.
- K. Vapor Retarder: Clear 10-mil- thick polyethylene sheet.
- L. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

- M. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- N. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
- O. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- P. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.2 MIXES

- A. Comply with ACI 301 requirements for concrete mixtures.
- B. Normal-Weight Concrete: Prepare design mixes, proportioned according to ACI 301, as follows:
 - 1. Minimum Compressive Strength: 3000 psi at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.55.
 - 3. Slump Limit: 5 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
 - 4. Air Content: Maintain within range permitted by ACI 301. Do not allow air content of floor slabs to receive troweled finishes to exceed 3 percent.
- C. Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M.
 - 1. When air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 CONCRETING

- A. Construct formwork according to ACI 301 and maintain tolerances and surface irregularities within ACI 347R limits of Class A, 1/8 inch for concrete exposed to view and Class C, 1/2 inch for other concrete surfaces.
- B. Place vapor retarder on prepared subgrade, with joints lapped 6 inches and sealed.
- C. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- D. Install construction, isolation, and contraction joints where indicated. Install full-depth joint-filler strips at isolation joints.

- E. Place concrete in a continuous operation and consolidate using mechanical vibrating equipment.
- F. Protect concrete from physical damage, premature drying, and reduced strength due to hot or cold weather during mixing, placing, and curing.
- G. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.
- H. Slab Finishes: Comply with ACI 302.1R for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces. Provide the following finishes:
 - 1. Scratch finish for surfaces to receive mortar setting beds.
 - 2. Float finish for interior steps and ramps and surfaces to receive waterproofing, roofing, or other direct-applied material.
 - 3. Troweled finish for floor surfaces and floors to receive floor coverings, paint, or other thin film-finish coatings.
 - 4. Trowel and fine-broom finish for surfaces to receive thin-set tile.
 - 5. Nonslip-broom finish to exterior concrete platforms, steps, and ramps.
- I. Cure formed surfaces by moist curing for at least seven days.
- J. Begin curing concrete slabs after finishing. [Keep concrete continuously moist for at least seven days] [Apply membrane-forming curing compound to concrete] [Apply membrane-forming curing and sealing compound to concrete].
- K. Owner will engage a testing agency to perform field tests and to submit test reports.
- L. Protect concrete from damage. Repair surface defects in formed concrete and slabs.

END OF SECTION 03 30 0

SECTION 04 05 31 – CAVITY WALL FLASHING/DRAINAGE SYSTEM: TOTALFLASH

PART 1 - GENERAL

1.1 SUMMARY

- A. Product guide specification can be used to specify TotalFlash® which is an all-inclusive unitized flashing/drainage system. Product specification typically inserted into Section 04800 – MASONRY ASSEMBLIES or other similar masonry specification sections listed below. Section includes Flashing, Cavity Wall Drainage, Drip Edge, Termination Bar and Drainage Weeps. Replaces the requirement for flashing, weeps, mortar collection product, drip edge and termination bar.
- B. Related Sections:
 - 1. 04 20 00 Unit Masonry Assemblies
- C. Product replaces requirements for Flashing, Mortar Collection System, WeepVent, Drip Edge and Termination bar as required.

1.2 SUBMITTALS

- A. Provide in accordance with Section 01 33 00 (Submittal Procedures)
 - 1. Product data and installation instructions.
 - 2. TotalFlash® can be made with all flashing membranes. TotalFlash® is factory produced in a controlled environment vs. field assembly. Two sample sections demonstrating lap joint available on request.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Mortar Net Solutions 326 Melton Road, Burns Harbor, IN 46304
Ph: 800-664-6638 Fax: 219-787-5088 www.MortarNet.com

2.2 PRODUCTS

Mortar Net's "TotalFlash®" system is designed to replace traditional flashing components. Custom cut to size configurations for headers and door openings are available. The TotalFlash® Cavity Wall Drainage system, basis of design is 45-mil membrane of EPDM rubber (ethylene propylene diene monomer rubber; recycled polyester 1/4-inch x 10-inch Mortar Net Solutions drainage mat; and 28-gauge 304 stainless steel drip edge; high strength corrosion and UV resistant plastic termination bar; and integral no-clog weep tabs. Self-tapping grommated hex head screws are #14 x 2-inch for metal or wood stud, cast in place concrete or concrete masonry units.

Other membranes are available: Thermoplastic with UV stabilizers and non-migratory plasticizers, 40-mil Rubberized Asphalt, 40-mil Thermoplastic Olefin (TPO) or 5-ounce Copper Laminate, 24-gauge, Stainless Steel laminated fabric membrane or designer's choice.

Seamless factory molded 14-inch inside and outside corner boots, 4-inch and 6-inch end dams are produced from synthetic rubber.

2.3 PANEL SIZES

New Construction Standard Size	18-inch x 5-1/2 foot
Additional Sizes	12-inch x 5-1/2 foot 24-inch x 5-1/2 foot
CUSTOM SIZES & CONFIGURATIONS AVAILABLE FOR MASONRY OPENINGS AND SPECIAL CONDITIONS	

A. Mortar Collection Drainage Mat and Drainage Weep Tabs:

Recycled polyester material impregnated with biocide to resist mold and flame retardant. High Loft Non- Woven mesh designed to allow moisture to migrate to the integrated weep tabs; product adhered to the flashing membrane.

1. Thickness: 1/4 inch (6.35 mm)
2. Height: 10 inches
3. Length: 5 feet

B. Drip Edge:

304 Stainless Steel Drip Edge pre-attached to the flashing membrane and designed to divert moisture away from the masonry wall.

1. 28-gauge 304 Stainless Steel with hemmed drip edge
2. Length: 5.0 feet
3. Width: 3.0 inches Other Products Available; Cold rolled copper or 24-gauge Kynar finish galvanized steel; colors include Almond, Terra-Cotta, Gray and Tan (all options available separately in 10-foot lengths).

C. Termination Bar:

Pre-attached termination bar is designed to fasten flashing system to the substrate.

1. Strip manufactured from high strength corrosion resistance plastic with pre-drilled holes for attachment.
2. Length 5 feet
3. Hole spacing 6 inches
4. Other Products Available; 16-gauge stainless steel termination bar flat or with sealant bend.

D. Screws:

Provided self-tapping hex head screws designed to allow attachment to Masonry, Concrete, Wood or Steel Stud.

1. #14 x 2-inch
2. Quantity per box 100 Self-tapping #14 x 2-inch hex screws with self-sealing gaskets.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install Flashing/Drainage System in accordance with manufacturer's installation instructions. Instructions can be found at: <https://mortar.net.com/totalflash-panel/totalflash-installation/>

END OF SECTION 04 05 31

SECTION 04 20 00 - UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. See Structural Drawings and Division 5 Section "Metal Fabrications" for furnishing steel lintels and shelf angles for unit masonry.
- B. Submittals:
 - 1. Samples for face brick and colored mortar.
 - 2. Material Certificates: For each type of product indicated. Include statements of material properties indicating compliance with requirements.
- C. Comply with ACI 530.1/ASCE 6/TMS 602.
- D. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections required by authorities having jurisdiction.
 - 1. Inspections: Level 1 special inspections according to the IBC.
 - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
- E. Sample Panels: Construct a sample wall panel approximately 48 inches (1200 mm) long by 48 inches (1200 mm) high to demonstrate aesthetic effects and set quality standards for materials and execution.

PART 2 - PRODUCTS

2.1 MASONRY UNITS

- A. Face Brick: ASTM C 216, Grade SW, Type FBA.
 - 1. Products:
 - a. Palmetto Brick Company – North Georgia Brick – 404-597-2405
 - 1) .75 Greystone
 - b. Mortar color TBD
 - 2. Size: Common modular.
 - 3. Solid brick with exposed surfaces finished for ends of sills and caps.
 - 4. Special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
- B. Concrete Masonry Units

1. Products:
 - a. Block and Mortar Per Structural Drawings
2. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - a. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

2.2 MORTAR AND GROUT

- A. Mortar: ASTM C 270, proportion specification: Type S.
 1. Use portland cement-lime mortar.
 2. Do not use calcium chloride in mortar.
 3. Colored Mortar: For face brick, use colored cement or cement-lime mix. Color TBD
 4. Water-Repellent Additive: For mortar used with concrete masonry units made with integral water repellent, use product recommended by manufacturer of units.
- B. Grout: ASTM C 476 with a slump of 8 to 11 inches (200 to 280 mm).
- C. Refractory Mortar: Ground fireclay mortar or other refractory mortar that passes ASTM C 199 test and is acceptable to authorities having jurisdiction.

2.3 REINFORCEMENT, TIES, AND ANCHORS

- A. Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60 (Grade 420).
- B. Joint Reinforcement: ASTM A 951.
 1. Coating: hot-dip galvanized.
 2. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
 3. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
 4. Wire Size for Veneer Ties: 0.148-inch (3.77-mm) diameter.
 5. For single-wythe masonry, provide either ladder design or truss design.
- C. Veneer Anchors: Hot-dip galvanized steel, two-piece adjustable masonry veneer anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to studs, and acceptable to authorities having jurisdiction.
 1. Products:
 - a. MasonPro - Type III or equal

2.4 EMBEDDED FLASHING MATERIALS

- A. Sheet Metal Flashing: Stainless steel, 0.0156 inch (0.4 mm) thick.
- B. Rubberized Asphalt Sheet Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.040 inch (1.02 mm).
 - a. Basis-of-design Product: Subject to compliance with requirements, provide Mortar Net Solutions; TotalFlash unitized flashing and cavity drainage system or comparable product by one of the following:
 - i. Advanced Building Products Inc.
 - ii. Carlisle Coatings & Waterproofing Inc.
 - iii. Fiberweb, Clark Hammerbeam Corp.
 - iv. Grace Construction Products; W.R. Grace & Co. -- Conn.
 - v. Heckmann Building Products, Inc.
 - vi. Polyguard Products, Inc.
 - vii. W. R. Meadows, Inc.
 - viii. Williams Products, Inc.
 - b. Accessories: Provide preformed corners, end dams, and materials produced by flashing manufacturer.
 - i. Basis-of-Design Product: Mortar Net Solutions; CompleteFlash
 - c. Sealants:
 - i. Basis-of-Design Product: Mortar Net Solutions; BTL-1, Butyl.
- C. Application: Unless otherwise indicated, use the following:
 - a. Where flashing is indicated to receive counterflashing, use metal flashing.
 - b. Where flashing is indicated to be turned down at or beyond the wall face, use metal flashing.
 - c. Where flashing is partly exposed and is indicated to terminate at the wall face, use a flexible flashing with a metal drip edge or elastomeric thermoplastic flashing with a drip edge.

- D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.5 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded strips complying with ASTM D 1056, Grade 2A1.
- B. Preformed Control-Joint Gaskets: Designed to fit standard sash block and to maintain lateral stability in masonry wall; made from styrene-butadiene rubber or PVC.
- C. Weep/Cavity Vent Products:
 - 1. See section 04 05 31
- D. Proprietary Acidic Masonry Cleaner: Product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units.
 - 1. Products:
 - a. MasonPro - Vana Trol or equal

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cut masonry units with saw. Install with cut surfaces and, where possible, cut edges concealed.
- B. Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.
- C. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- D. Stopping and Resuming Work: Rack back units; do not tooth.
- E. Fill cores in hollow concrete masonry units with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- F. Build non-load-bearing interior partitions full height and install compressible filler in joint between top of partition and underside of structure above.
- G. Tool exposed joints slightly concave when thumbprint hard unless otherwise indicated.
- H. Keep cavities clean of mortar droppings and other materials during construction.

- I. Set firebox brick in full bed of refractory mortar with full head joints. Make joints approximately 1/8 inch (3 mm) wide and tool smooth.
- J. Set clay flue liners in full beds of refractory mortar to comply with ASTM C 1283.

3.2 LINTELS

- A. Install lintels where indicated.
- B. Minimum bearing of 8 inches (200 mm) at each jamb unless otherwise indicated.

3.3 FLASHING AND WEEP HOLES

- A. Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to the downward flow of water in the wall, and where indicated.
- B. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing before covering with mortar.
 - 1. Extend flashing 4 inches (100 mm) into masonry at each end and turn up 2 inches (50 mm) to form a pan.
- C. Trim wicking material used in weep holes flush with outside face of wall after mortar has set.

3.4 CLEANING

- A. Clean masonry as work progresses. Remove mortar fins and smears before tooling joints.
- B. Final Cleaning: After mortar is thoroughly cured, clean exposed masonry.
 - 1. Wet wall surfaces with water before applying acidic cleaner, then remove cleaner promptly by rinsing thoroughly with clear water.
 - 2. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

END OF SECTION 04 20 00

SECTION 05 12 00 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data Shop Drawings and mill test reports.
- B. Comply with AISC's "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design," RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts," and AWS D1.1, "Structural Welding Code--Steel."

PART 2 - PRODUCTS

2.1 STRUCTURAL STEEL AND ACCESSORIES

- A. Structural-Steel Shapes ASTM A 992/A 992M, Grade 50, high-strength, low-alloy columbium-vanadium steel, Plates, and Bars: ASTM A 36/A 36M, carbon steel.
- B. Cold-Formed Structural-Steel Tubing: ASTM A 500, Grade B.
- C. Steel Pipe: ASTM A 53, Type E or S, Grade B, standard weight (Schedule 40), black finish.
- D. Anchor Rods, Bolts, Nuts: ASTM A 36/A 36M, unheaded rods.
- E. Bolts, Nuts, and Washers: ASTM A 325, Type 1, high-strength heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers, uncoated.
- F. Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd, rust-inhibiting primer.
- G. Grout: ASTM C 1107, nonmetallic, shrinkage resistant, premixed.

2.2 FABRICATION

- A. Fabricate structural steel according to AISC specifications and tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.
- B. Shop Priming: Prepare surfaces according to SSPC-SP 2, "Hand Tool Cleaning" or SSPC-SP 3, "Power Tool Cleaning." Shop prime steel to a dry film thickness of at least 1.5 mils (0.038 mm). Do not prime surfaces to be embedded in concrete or mortar or to be field welded.

PART 3 - EXECUTION

3.1 ERECTION

- A. Erect structural steel according to AISC specifications and within erection tolerances of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- B. Set base and bearing plates on wedges, shims, or setting nuts. Tighten anchor bolts, cut off wedges or shims flush with edge of plate, and pack grout solidly between bearing surfaces and plates.
- C. Bolted Connections: Install and tighten non high-strength bolts, unless high-strength bolts are indicated. Snug tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- D. Weld Connections: Comply with AWS D1.1.
- E. Any steel member modified in the field (exposed metal, burned areas etc.), shall be prepped and reprimed to match shop primed areas.

END OF SECTION 05 12 00

SECTION 05 40 00 – COLD FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data, Shop Drawings, and, material certificates.
- B. Comply with AISI's "Specification for the Design of Cold-Formed Steel Structural Members" for calculating structural characteristics of cold-formed metal framing.
- C. Comply with HUD's "Prescriptive Method for Residential Cold-Formed Metal Framing.
- D. Comply with AWS D1.3, "Structural Welding Code--Sheet Steel."
- E. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Galvanized Steel Sheet: ASTM A 653/A 653M, G60 zinc coated; Structural Steel (SS); Grade per drawings.
- B. Steel Studs: C-shaped, with flange width of not less than 1-5/8 inches, minimum uncoated steel thickness of gages and of depths indicated in ASTM sizing standards.
- C. Steel Track: U-shaped, minimum uncoated metal thickness as indicated but not less than that used with studs, with flange widths of 1-1/4 inches for of web depths indicated.

2.2 ACCESSORIES

- A. Accessories: Fabricate from the same material and finish used for framing members, of manufacturer's standard thickness and configuration, unless otherwise indicated.
- B. Cast-in-Place Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel hex-headed bolts and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
- C. Mechanical Fasteners: Corrosion-resistant coated, self-drilling, self-threading steel drill screws.
- D. Insulation: ASTM C 665, Type I, unfaced mineral-fiber blankets.
- E. Galvanizing Repair Paint: SSPC-Paint 20 or DOD-P-21035.

2.3 FRAMING

- A. Install framing and accessories level, plumb, square, and true to line, and securely fastened, according to ASTM C 1007. Temporarily brace framing until entire integrated supporting structure has been completed and permanent connections are secured.
 - 1. Cut framing members by sawing or shearing; do not torch cut.
 - 2. Fasten framing members by welding or screw fastening.
 - 3. Install insulation in built-up exterior framing members.
 - 4. Fasten reinforcement plates over web penetrations larger than standard punched openings.
- B. Erection Tolerances: Install cold-formed metal framing with a maximum variation of 1/8 inch in 10 feet and with individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
- C. Studs: Install continuous top and bottom tracks securely anchored at corners and ends. Squarely seat studs against webs of top and bottom tracks. Space studs as indicated, set plumb, align, and fasten both flanges of studs to top and bottom tracks.
 - 1. Install and fasten horizontal bridging in stud system, spaced in rows not more than 48 inches apart.
 - 2. Install steel-sheet diagonal bracing straps to both stud flanges, terminate at and fasten to reinforced top and bottom track and anchor to structure.
 - 3. Install miscellaneous framing and connections to provide a complete and stable wall-framing system.
 - 4. Isolate non-load-bearing curtain-wall framing from building structure using vertical slide clips or deflection track to prevent transfer of vertical loads while providing lateral support.
- D. Joists: Install and securely anchor perimeter joist track sized to match joists. Install joists bearing on supporting framing, brace and reinforce, and fasten to both flanges of joist track.
 - 1. Install bridging and fasten bridging at each joist intersection.
 - 2. Install miscellaneous joist framing and connections, including web stiffeners, closure pieces, clip angles, continuous angles, hold-down angles, anchors, and fasteners.

PART 3 - EXECUTION (Not Used)

END OF SECTION 05 40 00

SECTION 05 44 00 – COLD FORMED METAL TRUSSES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Pre-engineered, pre-fabricated light gauge cold-formed steel truss framing system.
- B. Accessories including anchorage, bracing and bridging.

1.02 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry: Wood blocking.
- B. All Division 09 00 00's - Finishes

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM) Standards:
 - 1. ASTM A 653/653M, "Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process".
 - 2. ASTM A 780, "Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings".
 - 3. ASTM C 955, "Standard Specification for Load Bearing (Transverse and Axial) Steel Studs, Runners (Track) and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.

1.04 QUALITY ASSURANCE

- A. Comply with American Iron and Steel Institute (AISI), "Specification for the Design of Cold-formed Steel Structural Members for computing structural properties of light gauge trusses.
- B. Comply with American Welding Society (AWS) D1.1, "Structural Welding Code", latest edition, for welding materials and processes and qualification of welding operators.
- C. Underwriter's Label: When Contract Drawings indicate UL Design Numbers, provide framing units which have been listed in Underwriter's Laboratories "Fire Resistance Directory" for use in the assemblies indicated for fire-resistance rating and which have been approved by governing authorities having jurisdiction.
- D. Fabricator Qualifications: The metal truss fabricator shall have a minimum of five-(5) years successful experience in fabrication of light gauge load-bearing metal truss framing systems similar to the system required for this project and be approved by the steel truss system fabricator.

- E. It is the responsibility of the Contractor to maintain an adequate program of quality control for the materials, production methods and workmanship to assure conformance of all work to the Contract Documents.

1.05 PERFORMANCE REQUIREMENTS

- A. Structural Characteristics: Calculate structural characteristics of cold-formed steel truss members according to American Iron and Steel Institute (AISI), "Specification for the Design of Cold-formed Steel Structural Members", latest edition.
- B. Structural Performance: Design, engineer, fabricate and erect cold-formed steel trusses to withstand specified design loads within limits and under conditions required.
 - 1. Design Loads: As indicated on the Drawings.
 - 2. Deflections: Live load deflection shall meet the following (unless otherwise indicated on the Drawings);
 - a. Roof Trusses: Vertical deflection less than or equal to 1.240 of the span.
 - 3. Design: Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors or other detrimental effects when subject to a maximum ambient temperature change of 120 degrees Fahrenheit (67 degrees C).

1.05 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each type of cold-formed steel framing and accessory required.
- B. Shop Drawings: Submit shop drawings in accordance with Section 01 33 00 for design and fabrication of lightgauge load-bearing cold-formed truss framing systems. Include placing drawings for framing members indicating member size and gage designations, number, type, location, spacing, method of attachment to supporting members and necessary erection details. Indicate supplemental strapping, bracing, splices, bridging, accessories and details required for proper installation.
 - 1. Submit detailed roof truss layouts.
 - 2. Submit truss drawings verifying truss' ability to meet local code and design requirements. Include:
 - a. Description of design criteria.
 - b. Calculations for the design of all load-bearing lightgauge framing systems including loading, section modulus, assumed allowable stress, deflection and calculations to meet design load requirements indicated on the Drawings.
 - c. Truss member sizes and gauges and connections at truss joints.
 - d. Truss support reactions.
 - e. Top chord, bottom chord and web bracing requirements.

3. Provide shop drawings and design calculations prepared, signed and stamped by a structural engineer registered in the State where the project is located.
4. Do not reproduce Contract Drawings for shop drawings. Such reproduction will result in the rejection of the shop drawings.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver lightgauge framing members and accessories to project site in manufacturer's unopened containers or bundles, fully identified by name, brand, type and grade. Stack in designated areas permitting easy access for inspection and identification.
- B. Store trusses on blocking, pallets, platforms or other supports off the ground and in an upright position sufficiently braced to avoid damage from excessive bending.
- C. Protect trusses and accessories from corrosion, deformation, damage and deterioration when stored at project site. Keep trusses free of dirt and other foreign matter.
- D. Inspect lightgauge framing members and reject those members that are damaged.
- E. Store packaged materials in a protected, weathertight, and dry place until ready for use. Store packaged materials in their original, unbroken packages or containers.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Lightgauge Load-Bearing Cold-Formed Steel Trusses:
 1. MiTek Industries, Inc.
 2. Alpine Engineered Products, Inc.
 3. Dale industries, Inc.
 4. Marino/Ware Division, Ware Industries, Inc.

2.02 LIGHTGAUGE TRUSS FRAMING SYSTEM

- A. Steel Trusses: Ultra-Span lightgauge steel roof truss components manufactured by MiTek Industries, Inc. or equivalent by other acceptable manufacturer. Provide manufacturer's standard steel truss members, bracing, bridging, blocking, reinforcements, fasteners and accessories with each type of steel truss required.

2.03 MATERIALS

- A. Materials:
 1. All Component Gauges: Fabricate components of structural quality steel sheet per ASTM A 653 with minimum yield strength of 40,000-psi.

2. Bracing, Bridging and Blocking Members: Fabricate components of commercial quality steel sheet per ASTM A 653 with minimum yield strength of 33,000-psi.
- B. Steel Truss Components: Provide sizes, shapes and gages indicated.
 1. Design Uncoated-Steel Thickness: 20-gauge, 0.0350-inch.
 2. Design Uncoated-Steel Thickness: 18-gauge, 0.0460-inch.
 3. Design Uncoated-Steel Thickness: 16-gauge, 0.0570-inch.
 4. Design Uncoated-Steel Thickness: 14-gauge, 0.0730-inch.
- C. Finish: Provide galvanized finish to metal framing components conforming to ASTM A 525, G60, minimum coating.
- D. Fastenings:
 1. Screws: Manufacturer recommended self-drilling, self-tapping screws with corrosion-resistant plated finish. Fasteners shall be of sufficient size and number to ensure the strength of the connection.
 2. Welding: Comply with AWS D1.1 when applicable and AWS D1.3 for welding base metals less than 1/8-inch thick.
 3. Other Fasteners: As accepted by the truss engineer.

2.04 FABRICATION

- A. General: Factory fabricate cold-formed steel trusses plumb, square, true to line and with connections securely fastened, according to manufacturer's recommendations and the requirements of this Section.
 1. Fabricate truss assemblies in jig templates.
 2. Cut truss members by sawing or shearing or plasma cutting.
 3. Fasten cold-formed steel truss members by welding or screw fastening, or other methods as standard with fabricator. Wire tying of framing members is not permitted.
 - a. Comply with AWS requirements and procedures for welding, appearance and quality of welds and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to cold-formed steel truss component manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.
- B. Care shall be taken during handling, delivery and erection. Brace, block or reinforce truss as necessary to minimize member and connection stresses.
- C. Fabrication Tolerances: Fabricate trusses to a maximum allowable tolerance variation from plumb, level and true to line of 1/8-inch in 10-feet and as follows:
 1. Squareness: Fabricate each cold-formed steel truss to a maximum out-of-square tolerance of 1/8-inch.

PART 3 - EXECUTION**3.01 EXAMINATION**

- A. Verification of Conditions: Lightgauge Truss Framing System Installer shall verify project conditions are ready for installation of truss framing system. Verify adequacy of structure and substrates.
 - 1. Submit written notification if conditions are unacceptable.
 - 2. Do not begin truss framing installation activities before unacceptable conditions have been corrected.
 - 3. Beginning construction activities of the truss framing system installation indicates Installer's acceptance of conditions.

3.02 GENERAL

- A. Erection of trusses, including proper handling, safety precautions, temporary bracing and other safeguards or procedures is the responsibility of the Contractor and the Contractor's Truss Installer.
- B. Exercise care and provide erection bracing required to prevent toppling of trusses during erection.
- C. Erect trusses with plane of truss webs vertical and parallel to each other, accurately located at design spacing indicated.
- D. Provide proper lifting equipment suited to sizes and types of trusses required, applied at lift points recommended by truss fabricator. Exercise care to avoid damage to truss members during erection and to keep horizontal bending of the trusses to a minimum.
- E. Provide framing anchors as indicated or accepted on the engineering design drawing or erection drawings. Anchor trusses securely at bearing points.
- F. Install roof framing and accessories plumb, square, true to line and with connections securely fastened, according to manufacturer's recommendations.
 - 1. Do not cut truss members without prior approval of truss engineer.
 - 2. Fasten cold-formed steel roof framing by welding or screw fastening, as standard with fabricator. Wire tying of roof framing is not permitted.
 - a. Comply with AWS requirements and procedures for welding, appearance and quality of welds and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to cold-formed roof framing manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.
 - c. Install roof framing in one-piece lengths, unless splice connections are indicated.
 - d. Provide temporary bracing and leave in place until trusses are permanently stabilized.

- G. Erection Tolerances: Install trusses to a maximum allowable tolerance variation from plumb, level and true to line of 1/8-inch in 10-feet and as follows:
 - 1. Space individual trusses no more than plus or minus 1/8-inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.03 INSTALLATION OF ROOF TRUSSES

- A. Install bridge and brace trusses according to manufacturer's recommendations and requirements of this Section.
- B. Space trusses as indicated on the Drawings.
- C. Do not alter, cut or remove truss members or connections of truss members.
- D. Erect trusses with plane of truss webs plumb and parallel to each other, align and accurately position at spacing indicated.
- E. Erect Trusses without damaging truss members or connections.
- F. Align truss bottom chords with load-bearing studs or continuously reinforce track to transfer loads to structure. Anchor trusses securely at all bearing points.
- G. Install continuous bridging and permanent truss bracing per truss design requirements.
- H. Install necessary roof cross and diagonal bracing per design professional recommendations.

3.04 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanizing repair paint according to ASTM A 780 and the manufacturer's instructions.

END OF SECTION 05 44 00

SECTION 05 50 00 – METAL FABRICATIONS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Shop Drawings showing details of fabrication and installation.

PART 2 - PRODUCTS

2.1 METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 240/A 240M or ASTM A 666, Type 304.
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- D. Rolled Steel Floor Plate: ASTM A 786/A 786M.
- E. Steel Tubing: ASTM A 500.
- F. Steel Pipe: ASTM A 53, standard weight (Schedule 40), black finish.
- G. Slotted Channel Framing: Cold-formed steel channels, 1-5/8 by 1-5/8 inches thick, complying with MFMA-4.
- H. Cast Iron: ASTM A 48/A 48M or ASTM A 47/A 47M.
- I. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063-T6.
- J. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.
- K. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

2.2 GROUT

- A. Nonshrink, Nonmetallic Grout: ASTM C 1107; recommended by manufacturer for exterior applications.

2.3 FABRICATION

- A. General: Shear and punch metals cleanly and accurately. Remove burrs and ease exposed edges. Form bent-metal corners to smallest radius possible without impairing work.

- B. Welding: Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. At exposed connections, finish welds and surfaces smooth with contour of welded surface matching those adjacent
- C. Fabricate loose lintels from steel angles and shapes. Size to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 8 inches.
- D. Fabricate structural-steel door frames from structural shapes and bars fully welded together, with 5/8-by-1-1/2-inch steel channel stops. Plug-weld built-up members and continuously weld exposed joints.
 - 1. Apply clear lacquer to concealed surfaces of units set into concrete.

2.4 STEEL AND IRON FINISHES

- A. Hot-dip galvanized steel fabrications at exterior locations.
- B. Prepare uncoated ferrous metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning," and paint with a fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack.
- B. Fit exposed connections accurately together to form hairline joints.
- C. Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.
- D. Install pipe guards at exposed vertical pipes where not protected by curbs or other barriers. Install by bolting to wall or column with drilled-in expansion anchors.
- E. Anchor bollards in concrete and fill solidly with concrete, mounding top surface.

END OF SECTION 05 50 00

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: ICC-ES evaluation reports for treated wood, engineered wood products, and metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Provide dressed lumber, S4S, 19 percent maximum moisture content for 2-inch nominal thickness or less, marked with grade stamp of inspection agency.
- B. 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.
- C. Wood Structural Panels: DOC PS 2. Provide plywood complying with DOC PS 1, where plywood is indicated.
 - 1. Comply with "Code Plus" provisions in APA Form No. E30K.

2.2 TREATED MATERIALS

- A. Preservative-Treated Materials: AWPAC2 lumber and AWPAC9 plywood, labeled by an inspection agency approved by ALSC's Board of Review. After treatment, kiln-dry lumber and plywood to 19 and 15 percent moisture content, respectively. Treat indicated items and the following:
 - 1. Wood members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Concealed members in contact with masonry or concrete.
 - 3. Wood framing members less than 18 inches above grade.
 - 4. Wood floor plates installed over concrete slabs directly in contact with earth.

2.3 LUMBER

- A. Dimension Lumber: The following grades are per inspection agency indicated:
 - 1. Framing Other Than Non-Load-Bearing Partitions: No. 2 Southern pine: SPIB.
 - 2. Exposed Framing: No. 1 Southern pine: SPIB.
- B. Miscellaneous Lumber: Construction, grade of any species for nailers, blocking, and similar members.

2.4 PANEL PRODUCTS

- A. Wall Sheathing:

1. Plywood: Exposure 1.
2. Oriented Strand Board: Exposure 1.
3. Fiberglass – Mat Faced Gypsum Sheathing: DensGlass Sheathing

- B. Telephone and Electrical Equipment Backing Panels: Plywood, Exposure 1, C-D Plugged, fire-retardant treated, not less than 1/2 inch thick.

2.5 MISCELLANEOUS PRODUCTS

- A. Fasteners: Size and type indicated. Where rough carpentry is 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 153.

1. Power-Driven Fasteners: CABO NER-272.
2. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

- B. Metal Framing Anchors: Hot-dip galvanized steel of structural capacity, type, and size indicated.

- C. Building Wrap: Refer to SECTION 07 14 00 – Fluid Applied Waterproffing

- D. Sill-Sealer: Glass-fiber insulation, 1-inch thick, compressible to 1/32 inch.

- E. Adhesives for Field Gluing Panels to Framing: APA AFG-01.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

- B. Securely attach rough carpentry to substrates, complying with the following:

1. CABO NER-272 for power-driven fasteners.
2. Published requirements of metal framing anchor manufacturer.
3. TABLE 2304.9.1, "FASTENING SCHEDULE" in the International Building Code.

- C. Fastening Methods: Comply with recommendations in APA Form No. E30K and the following:

1. Sheathing: Nail to framing.

END OF SECTION 06 10 00

SECTION 06 10 53 – MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Model code evaluation reports for treated wood.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Provide dressed lumber, S4S, 19 percent maximum moisture content for 2-inch nominal thickness or less, marked with grade stamp of inspection agency.
- B. Wood Structural Panels: DOC PS 2. Provide plywood complying with DOC PS 1, where plywood is indicated.
 - 1. Comply with "Code Plus" provisions in APA Form No. E30K.

2.2 TREATED MATERIALS

- A. Preservative-Treated Materials: AWPAC2 lumber and AWPAC9 plywood, labeled by an inspection agency approved by ALSC's Board of Review. After treatment, kiln-dry lumber and plywood to 19 and 15 percent moisture content, respectively. Treat indicated items and the following:
 - 1. Wood members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Concealed members in contact with masonry or concrete.
 - 3. Wood framing members less than 18 inches above grade.
 - 4. Wood floor plates installed over concrete slabs directly in contact with earth.

2.3 LUMBER

- A. Other Framing: Construction or No. 2 grade: Southern pine: SPIB.
- B. Concealed Boards: Mixed southern pine: No. 2 per SPIB rules.
- C. Miscellaneous Lumber: Construction, Stud, or No. 3 grade of any species for nailers, blocking, and similar members.

2.4 PANEL PRODUCTS

- D. Miscellaneous Concealed Plywood: Exposure 1 sheathing, span rating to suit framing in each location.
- E. Particleboard Underlayment: ANSI A208.1, Grade PBU.
- F. Hardboard Underlayment: AHA A135.4, Class 4 (Service), S1S; with back side sanded.
- G. Miscellaneous Exposed Plywood: A-D Interior, thickness as indicated, but at least 1/2 inch.

2.5 FASTENERS

- H. Fasteners of size and type indicated. Where carpentry is 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. Power-Driven Fasteners: CABO NER-272.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set carpentry to required levels and lines, with members plumb and true to line. Fit carpentry to other construction; scribe and cope for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.
- C. Countersink nail heads on exposed carpentry work and fill holes with wood filler.
- D. Installation of Panel Products: Comply with recommendations in APA Form No. E30K
- E. Install wood trim 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 for level and plumb. Install adjoining trim with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.

END OF SECTION 06 10 53

SECTION 06 20 00 - FINISH CARPENTRY

PART 1 - GENERAL

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.
- B. Softwood Plywood: DOC PS 1.
- C. Hardwood Plywood: HPVA HP-1.

2.2 EXTERIOR FINISH CARPENTRY

- A. Exterior Siding and Trim: Wood grain cement board material of same manufacturer as described in Section 07 46 20 – FIBER CEMENT SIDING.

2.3 INTERIOR STANDING AND RUNNING TRIM

- A. Interior Softwood Lumber Trim: C Select (Choice), eastern white, Idaho white, lodgepole, ponderosa, or sugar pine.
- B. Wood Moldings: WMMPA WM 4 made to patterns in WMMPA WM 12 from kiln-dried stock.
 - 1. Softwood Moldings for Transparent Finish: Eastern white, Idaho white, lodgepole, ponderosa, radiata, sugar pine, or Southern pine.
 - 2. Moldings for Painted Finish: P-Grade.
 - 3. Base: WM base; see interiors.
 - 4. Shoe Mold: WM 126, see interiors.
 - 5. Chair Rail: WM 297; see interiors.

2.4 SHELVING AND CLOTHES RODS

- A. Shelving: vinyl coated wire systems; located in pantry and storage closets. Pantry will receive 3 sets of "L" shaped vinyl coated wire shelving systems. Each storage closet will receive one shelf running the length of the closet.
- B. Shelf Brackets with Rod Support: BHMA A156.16, B04051; prime-painted formed steel.
- C. Clothes Rods: N/A

2.5 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Use manufacturers recommended fastening in all cases

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Condition finished carpentry in installation areas for 24 hours before installing.
- B. Prime and backprime lumber for painted finish exposed on the exterior.
- C. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Scribe and cut to fit adjoining work. Refinish and seal cuts.
- D. Install standing and running trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related trim. Cope at returns and miter at corners.
- E. Nail siding at each stud. Do not allow nails to penetrate more than one thickness of siding, unless otherwise recommended by siding manufacturer. Seal joints at inside and outside corners and at trim locations.

END OF SECTION 06 20 00

SECTION 06 40 13 – EXTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Shop Drawings.
- B. Quality Standard: Architectural Woodwork Institute's "Architectural Woodwork Quality Standards.
- C. Forest Certification: Provide woodwork produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria." Where applicable

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fiber Cement Boards: JAMES HARDIE trim boards, siding, and panels manufacturer; equal or better

2.2 EXTERIOR WOODWORK

- A. Complete fabrication before shipping to Project site to maximum extent possible. Disassemble only as needed for shipping and installing. Where necessary for fitting at Project site, provide for scribing and trimming.
- B. Backout or groove backs of flat trim members, and kerf backs of other wide, flat members, except for members with ends exposed in finished Work.
- C. Exterior Standing and Running Trim: Custom grade, made from fiber cement board.
- D. Exterior Ornamental Work: Custom grade, made from fiber cement board.
- E. Shop prime woodwork for paint finish with one coat of specified wood primer. Backprime with one coat of primer; two coats on items installed over concrete or masonry.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install woodwork per manufacturers recommendations.

- B. Install woodwork to comply with referenced quality standard for grade specified.
- C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 96 inches for level and plumb.
- D. Scribe and cut woodwork to fit adjoining work, seal cut surfaces, and repair damaged finish at cuts.
- E. Install trim with minimum number of joints possible, using full-length pieces to greatest extent possible. Stagger joints in adjacent and related members.

END OF SECTION 06 40 13

SECTION 06 40 23 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data for solid-surfacing materials, Shop Drawings and Samples showing the full range of colors, textures, and patterns available for each type of finish.
- B. Quality Standard: Architectural Woodwork Institute's "Architectural Woodwork Quality Standards."
- C. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is completed, and HVAC system is operating.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Softwood Plywood: DOC PS 1.
- B. Hardwood Plywood and Face Veneers: HPVA HP-1 made with adhesive containing no urea formaldehyde.
- C. High-Pressure Decorative Laminate: NEMA LD 3.
 - 1. Products:
 - a. See Finish Schedule
- D. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
 - 1. Products:
 - a. See drawings for finish selections and locations.

2.2 CABINET HARDWARE AND ACCESSORY MATERIALS

- A. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening, self-closing.
- B. Wire Pulls: Back mounted, solid metal, 3 inches long. Basis of Design is Amerock Allison collection; satin nickel finish.
- C. Catches: Magnetic catches, BHMA A156.9, B03141
- D. Adjustable Shelf Standards and Supports: BHMA A156.9, B03014; with shelf rests
- E. Drawer Slides: BHMA A156.9, B05091; Heavy Duty
 - 1. Box Drawer Slides: Grade 1HD-100.

2. File Drawer Slides: Grade 1HD-200.
3. Pencil Drawer Slides: Grade 1.

F. Grommets for Cable Passage through Countertops: 2-inch OD, molded-plastic grommets and matching plastic caps with slot for wire passage. Verify locations in shop drawings.

G. Exposed Hardware Finishes: Comply with BHMA A156.18 for BHMA code number indicated.

1. Finish: Satin Stainless Steel: BHMA 630

H. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to 15 percent moisture content.

2.3 INTERIOR WOODWORK

A. Complete fabrication to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

B. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.

C. Interior Standing and Running Trim for Transparent Finish: Premium grade, made from red oak, plain sawn.

D. Interior Ornamental Work for Transparent Finish: Premium grade, made from red oak, plain sawn.

E. Wood Cabinets for Transparent Finish: Premium grade.

1. AWI Type of Cabinet Construction: Flush overlay.
2. WI Construction Style: Style A, Frameless.
3. WI Door and Drawer Front Style: Flush overlay.
4. Wood Species and Cut for Exposed Surfaces: Red oak, plain sawn or sliced.
5. Grain Direction: Vertically for drawer fronts, doors, and fixed panels.
6. Matching of Veneer Leaves: Random match.
7. Veneer Matching within Panel Face: Running match.

F. Plastic-Laminate Cabinets: Custom grade.

1. AWI Type of Cabinet Construction: Flush overlay
2. Laminate Cladding: Horizontal surfaces other than tops, HGS; postformed surfaces, HGP; vertical surfaces, HGS; Edges, HGS; semiexposed surfaces, VGS
3. Drawer Sides and Backs: Solid hardwood
4. Drawer Bottoms: Hardwood plywood

G. Plastic-Laminate Countertops: Custom grade.

1. Laminate Grade: HGS for flat countertops, HGP for post-formed countertops.
2. Grain Direction: Parallel to cabinet fronts.

3. Edge Treatment: Same as laminate cladding on horizontal surfaces or Lumber edge for transparent finish matching wood species and cut on cabinet surfaces. Refer to casework elevations for countertops requiring lumber edge treatment
4. Wet surface areas to be built of marine grade plywood.

H. Solid-Surfacing Material Countertops: Custom grade.

1. Solid-Surfacing Material Thickness: 1/2 inch (13 mm)
2. Fabricate tops in one piece with shop-applied backsplashes and edges.
3. Install integral sink bowls in countertops in shop.
4. Wet surface areas to be built of marine grade plywood.

2.4 SHOP FINISHING OF INTERIOR ARCHITECTURAL WOODWORK

- A. Finishes: Same grades as items to be finished.
- B. Finish architectural woodwork at the fabrication shop; defer only final touch up until after installation.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Install woodwork to comply with referenced quality standard for grade specified.
- C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).
- D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Fasten with countersunk concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed nailing, countersunk and filled flush with woodwork.
- F. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches (900 mm) long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
- G. Cabinets: Install so doors and drawers are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.
- H. Anchor countertops securely to base units. Seal space between backsplash and wall.

END OF SECTION 06 40 23

SECTION 06 41 16 – PLASTIC LAMINATE FACED ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Submittals: Product Data and material Samples.

1.2 SUMMARY

- A. Section Includes:
 - 1. Plastic-laminate-faced architectural cabinets.
 - 2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.
- B. Related Requirements:
 - 1. Section 06 10 00 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets and concealed within other construction before cabinet installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including panel products, high-pressure decorative
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 2. Show locations and sizes of cutouts and holes for electrical switches and outlets and other items installed in architectural plastic-laminate cabinets.
 - 3. Apply WI Certified Compliance Program label to Shop Drawings.
- C. Samples for Initial Selection:
 - 1. Plastic laminates.
 - 2. PVC edge material.
 - 3. Thermoset decorative panels.
- D. Samples for Verification: Plastic laminates, 8 by 10 inches, for each color, pattern, and surface finish, with sample applied to core material and specified edge material applied to one edge.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and fabricator.
- B. Product Certificates: For each type of product.

- C. Woodwork Quality Standard Compliance Certificates: WI Certified Compliance Program certificates.

1.5 QUALITY ASSURANCE

- D. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in service performance. Shop is a licensee of WI's Certified Compliance Program.
- E. Installer Qualifications: Licensee of WI's Certified Compliance Program.
- F. Testing Agency Qualifications: For testing agency providing classification marking for fire retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

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

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that cabinets can be supported and installed as indicated.

PART 2 - PRODUCTS**2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS**

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
 - 1. Provide labels and certificates from WI certification program indicating that woodwork complies with requirements of grades specified.
 - 2. The Contract Documents may contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.
- B. Grade: Custom
- C. Type of Construction: Frameless
- D. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.
- E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Formica Corporation.
 - b. Wilsonart International; Div. of Premark International, Inc.
- F. Laminate Cladding for Exposed Surfaces:
 - 1. Horizontal Surfaces: Grade HGS.
 - 2. Postformed Surfaces: Grade HGP.
 - 3. Vertical Surfaces: Grade HGS.
 - 4. Edges: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
 - 5. Pattern Direction: Vertically for doors and fixed panels, horizontally for drawer fronts.
- G. Materials for Semi-exposed Surfaces:
 - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade CLS.
 - a. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
 - b. For semi-exposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, Grade VGS.
 - 2. Drawer Sides and Backs: Solid-hardwood lumber.
 - 3. Drawer Bottoms: Hardwood plywood.
- H. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.
- I. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
 - 1. Join subfronts, backs, and sides with glued dovetail joints.

- J. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
 - 1. As selected by Architect from laminate manufacturer's full range of colors and patterns..

2.2 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Wood Moisture Content: 4 to 9 percent.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
 - 1. Softwood Plywood: DOC PS 1, medium-density overlay.
 - 2. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.

2.3 CABINET HARDWARE AND ACCESSORIES

- A. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening, self-closing.
- B. Back-Mounted Pulls: BHMA A156.9, B02011.
- C. Wire Pulls: Back mounted, solid metal, 3 inches long. Basis of Design is Amerock Allison collection; satin nickel finish.
- D. Catches: Magnetic catches, BHMA A156.9, B03141.
- E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- F. Shelf Rests: BHMA A156.9, B04013; metal, two-pin type with shelf hold-down clip.
- G. Drawer Slides: BHMA A156.9.
 - 1. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated steel ball-bearing slides.
 - 2. For drawers more than 3 inches (75 mm) high but not more than 6 inches (150 mm) high and not more than 24 inches (600 mm) wide, provide Grade 1HD-100.
 - 3. For drawers more than 6 inches (150 mm) high or more than 24 inches (600 mm) wide, provide Grade 1HD-200.
- H. Tempered Float Glass for Cabinet Doors: ASTM C 1048, Kind FT, Condition A, Type I, Class 1 (clear), Quality-Q3, 6 mm thick unless otherwise indicated.
- I. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Stainless Steel: BHMA 630.
- J. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.4 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage.
- B. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
- C. Adhesives: Use adhesives that meet 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."
- D. Sealant: Use sealant recommended by plastic paneling manufacturer and complying with requirements in Division 07 Section "Joint Sealants."

2.5 FABRICATION

- E. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- F. Fabricate cabinets to dimensions, profiles, and details indicated.
- G. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- H. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
- I. Install glass to comply with applicable requirements in Section 08 80 00 "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

PART 3 - EXECUTION**3.1 PREPARATION**

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.
- B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.

3.2 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.

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

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean cabinets on exposed and semi-exposed surfaces.

END OF SECTION 06 41 16

SECTION 07 14 00 – FLUID APPLIED WATERPROOFING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Provide a complete waterproofing membrane system including all applicable sealants and elastomeric flashings needed to prevent water penetration at locations indicated.
- B. Section intended to address required weatherproofing in all locations.

1.2 SUBMITTALS

- A. Comply with pertinent provisions of SECTION 01 30 00
- B. Product data:
 - 1. Materials list of items proposed to be provided under this Section;
 - 2. Manufactures specifications and other data needed to prove compliance with the specified requirements
 - 3. Shop Drawings or catalog illustrations in sufficient detail to show installation and interface of the work of this Section with the work of adjacent trades
 - 4. Manufacturer's current recommended installation procedures which, when reviewed by Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.
 - 5. Written documentation of applicator's qualifications, including reference projects of similar scope and complexity, with current phone contacts of architects and owners for verification.

1.3 QUALITY ASSURANCE

- A. Install all products per manufacturer's details, requirements and recommendations.
- B. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.
- C. Applicator qualifications:
 - 1. Applicator shall have at least three years experience in installing materials of types specified and shall have successfully completed at least three projects of similar scope and complexity.
 - 2. Applicator shall designate a single individual as project foreman who shall be on site at all times during installation.
- D. Convene a pre-installation job-site conference three weeks prior to commencing work of this Section:

1. Secure attendance by Architect, Contractor, applicator, and authorized representatives of the membrane system manufacturer and interfacing trades.
2. Examine Drawings and Specifications affecting work of this Section, verify all conditions, review installation procedures, and coordinate scheduling with interfacing portions of the Work.

1.4 DELIVERY STORAGE AND HANDLING

- A. Deliver materials to job site in manufacturer's unopened containers with all labels intact and legible at time of use.
- B. Maintain the products in accord with manufacturer's recommendations with proper precautions to ensure fitness of material when installed.

1.5 SUBSTRATE CONDITIONS

A. General

1. Provide applicator with surfaces that are broom clean, dry, sound and free of voids, bugholes, rockpockets, honeycombs, protrusions, excessive roughness, foreign matter, frost, ice and other contaminants which may inhibit application or performance of the waterproofing membrane system.
2. Using suitable abrasive methods, remove residue of form release, curing compound, chemical retarders and other surface treatments, laitance, mortar smear, sawcutting residue, mill scale, rust, loose material and other contaminants from concrete, masonry and ferrous metal surfaces to receive the work of this Section.

- B. Concrete: Where work of this Section will be applied to concrete, provide surfaces that are smooth with finish equal to one that is light steel troweled followed by a fine hair broom.
- C. Metal flashings: Where metal flashings are substrate to waterproofing membrane, set the flashings in continuous bedding bead of urethane sealant; install sealant S-bead between metal laps and mechanically fasten to substrate along leading edges at every 4" on center, staggered linearly, to lay flat without fishmouths.
- D. Joints: Configuration shall be consistent with this Section and with all other requirements of the Contract Documents.

1.6 WARRANTY

- A. Deliver to the Architect signed copies of the following written warranties against defective materials and workmanship executed for the following periods following date of completion. Warrant that installed waterproofing membrane system shall be free of defects including adhesive failure, cohesive failure, and waterproofing failure resulting from substrate cracking up to 1/16 inch.
 1. Manufacturer's standard warranty covering materials for five year period;

2. Applicator's standard warranty covering workmanship for two year period.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide a complete fluid applied elastomeric waterproofing membrane system designed for concealed building components subject to hydrostatic head that is polyurethane, coal-tar free and complies with ASTM C836 :
 1. Acceptable product:
 - a. Basis of Design: Tremproof 250 GC; Tremco Inc. (below grade)
 - b. Tyvek Fluid Applied WB+ (weather barrier for above grade walls)
 2. Equivalent products of other manufacturers will be considered in accordance with provisions specified in Section 01 60 00 – PRODUCT REQUIREMENTS.

2.2 ACCESSORIES

- A. Primer: As recommended by waterproofing membrane system manufacturer;
- B. Joint backing: Closed-cell, polyethylene rod as recommended by membrane manufacturer;
- C. Reinforcing fabric: Woven fiberglass scrim cloth;
- D. Joint Treatment:
 1. Acceptable product:
 - a. Dymeric 240FC; Tremco Inc.
 - b. TREMproof 201T; Tremco Inc.
 - c. or approved equal
- E. Elastomeric sheet flashing: 1/16 inch thick by 12 inch wide uncured neoprene sheeting;
- F. Prefabricated Composite Drainage: Two-part prefabricated composite drainage material consisting of a formed polystyrene core covered on one side with filter fabric.
 1. For backfilled walls less than 20 feet in height, a composite drainage mat with non-woven needle-punched polypropylene filter fabric, 9 gpm/ft flow capacity per unit width and 10,800 lbs/ft² compressive strength.
 - a. Acceptable product: Tremdrain; Tremco Inc.

2.3 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor and approved by the membrane system manufacturer as compatible, subject to review of the Architect.

PART 3 - EXECUTION**3.1 SURFACE CONDITIONS**

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Applicator shall examine the areas and conditions under which work of this Section will be performed.
 - 1. Verify conformance with manufacturer's requirement
 - 2. Report unsatisfactory conditions in writing to the Architect
 - 3. Do not proceed until unsatisfactory conditions are corrected

3.2 PREPARATION

- A. Surface preparation and detailing procedures to be in accord with waterproof membrane system manufacturer's instructions and recommendations except where more stringent requirements are indicated.
- B. Clean all deck surfaces to receive membrane system in accord with manufacturer's instructions; vacuum clean or blow clean with oil-free compressed air all surfaces to receive sealants, detailing materials or membranes immediately prior to installation.
- C. Rout, clean, prepare and detail surface cracks in accord with manufacturer's instructions; install backer rod where required.
- D. Clean metal surfaces to bright metal by wire brushing or mechanical etching; scuff-sand lead flashing and plastic surfaces.
- E. Prime surfaces in accord with manufacturer's instructions.
- F. Install 1/4" diameter backer rod into corner of all horizontal-to-vertical junctures subject to movement and cover with 1" detail cant of approved sealant; install 1" detail cants at projections, curbs and other horizontal-to-vertical junctures.
- G. Install detail coats, joint and crack treatments, elastomeric flashing and reinforcing fabric in accord with manufacturer's instructions.
- H. Allow detail applications to cure in accord with manufacturer's instructions prior to general application of membrane.

3.3 INSTALLATION

- A. General: Install waterproofing system in accord with manufacturer's recommendations and instructions as applies to the Work except where more stringent requirements are indicated.
 - 1. Waterproofing membrane shall be applied in two lifts of 30-mils each to provide an overall pinhole-free membrane of minimum 60-mil thickness.
 - 2. Grid deck surfaces to assure proper coverage rates and verify membrane wet-film mil thickness with gauges as work progresses.
 - 3. Retain empty product containers during course of work to aid in determining whether completed membrane complies with required average dry-film thickness.
- B. Verify proper dry condition of substrate using method recommended by membrane system manufacturer; perform adhesion checks prior to general application of membrane system using field adhesion test method recommended by manufacturer.
- C. Mask off adjoining surfaces not to receive membrane system.
- D. Wipe clean all detail coats with white rags wetted with Xylene solvent; do not saturate detail coat.
- E. Apply membrane uniformly and allow cure in accord with manufacturer's instructions.
- F. Feather terminating edge when entire area cannot be completed in one day; clean area 6" wide along terminating edge of membrane with Xylene solvent on clean white rags prior to startup on next working day; use interlaminary primer per manufacturer's instructions as needed; overlap existing work by 6" with new work.
- G. Flood test: Plug drains on deck surfaces and use sand bags or other means to restrict runoff. Flood deck with water to depth of 2" (50 mm) and allow to stand at least 48 hours; repair leaks if occurs and retest.
- H. Install drainage material in accord with manufacturer's instructions.

3.4 PROTECTION AND CLEANUP

- A. Promptly remove primer or membrane system material from adjacent surfaces with MEK, Toluene or Xylene; leave work area in broom clean condition.
- B. Prohibit traffic over completed work and protect against work overhead until protection course is installed; protect from damage until protected beneath overlaying work.

END OF SECTION 07 14 00

SECTION 07 21 00 – THERMAL INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals:
 - 1. Product Data: For each type of product indicated, provide data on materials, describing insulation properties, surface burning characteristics, and other product test reports
 - 2. Manufacturer's installation instructions: Indicate special procedures, perimeter conditions requiring special treatment

PART 2 - GENERAL

2.1 INSULATION PRODUCTS

- A. Surface-Burning Characteristics: ASTM E 84, and as follows:
 - 1. Flame-Spread Index: 25 or less where exposed; otherwise, as indicated in Part 2 "Insulation Products" Article.
 - 2. Smoked-Developed Index: 450 or less.
- B. Foil-Faced Polyisocyanurate Board Insulation: ASTM C 1289, Type I, Class 1 or 2, faced on both sides with aluminum foil, with flame-spread index of 75 or less for unfaced core material.
- C. Mineral-Fiber-Blanket Insulation: ASTM C 665, Type III, Class A, foil-scrim-polyethylene vapor-retarder membrane on one face with fibers manufactured from glass fibers, with flame-spread index of 25 or less. Shall apply to sound batt insulation as well.

2.2 ACCESSORIES

- A. Sheet Radiant Barrier: ASTM C 1313, foil on one side, flame-spread index of 25 or less, and water-vapor transmission of 1 perm, maximum.
- B. Vapor Retarder: Polyethylene or equal.
- C. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed to fit between roof framing members and to provide cross-ventilation between attic spaces and vented eaves.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and fill voids with insulation.
- B. Except for loose-fill insulation and insulation that is friction fitted in stud cavities, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- C. Place loose-fill insulation to comply with ASTM C 1015.
 - 1. Comply with the CIMA's Special Report #3, "Standard Practice for Installing Cellulose Insulation."
- D. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage. Locate seams at framing members, overlap, and seal with tape.

END OF SECTION 07 21 00

SECTION 07 46 20 – FIBER CEMENT SIDING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fiber cement siding, panels, shingle, trim, fascia, moulding and accessories, James Hardie HZ10 Engineered for Climate Siding.

1.2 REFERENCES

- A. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.
- B. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.
- C. ASTM C1186 - Standard Specification for Flat Fiber-Cement Sheets

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- 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, representing actual product, color, and patterns.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.
- B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.
 - 4. Approved field samples may remain as part of completed Work.

1.5 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.

1.6 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.

1.7 WARRANTY

- A. Product Warranty: Limited, non-pro-rated product warranty.
 - 1. HardiPlank HZ10 lap siding for 30 years.
 - 2. HardieTrim HZ10 boards for 15 years.
 - 3. HardieSoffit HZ10 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 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 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: James Hardie Building Products, Inc., which is located at: 26300 La Alameda Suite 400 ; Mission Viejo, CA 92691; Toll Free Tel: 866-274-3464; Tel: 949-367-4980; Email: [request info \(info@jameshardie.com\)](mailto:request_info(info@jameshardie.com)); Web: www.jameshardie.com
- B. Equivalent products of other manufacturers will be considered in accordance with provisions specified in Section 01 60 00 – PRODUCT REQUIREMENTS.

2.2 SIDING

- A. HardiPlank HZ10 lap siding, HardiPanel HZ10 vertical siding, HardieSoffit HZ10 panels and HardieShingle HZ10 siding requirement for Materials:
 - 1. Fiber-cement Siding - complies with ≈STM C 1186 Type A Grade II.
 - 2. Fiber-cement Siding - complies with ≈STM E 136 as a noncombustible material.
 - 3. Fiber-cement Siding - complies with ASTM E 84 Flame Spread Index = 0, Smoke Developed Index = 5.
 - 4. CAL-FIRE, Fire Engineering Division Building Materials Listing - Wildland Urban Interface (WUI) Listed Product.
 - 5. National Evaluation Report No. NER 405 (BOCA, ICBO, SBCCI, IBC, IRC).
 - 6. City of Los Angeles, Research Report No. 24862.
 - 7. Miami Dade County, Florida Notice of Acceptance 07-0418.04.
 - 8. US Department of Housing and Urban Development Materials Release 1263d
 - 9. California DSA PA-019.

10. City of New York M EA 223-93-M.
 11. Florida State Product Approval FL889.
 12. Texas Department of Insurance Product Evaluation EC-23.
- B. Lap Siding: HardiePlank HZ10 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 with 6 inches exposure.
- C. Trim:
1. HardieTrim HZ10 boards as manufactured by James Hardie Building Products, Inc.
 2. HardieTrim HZ10 Fascia boards as manufactured by James Hardie Building Products, Inc.
 3. HardieTrim HZ5 Crown moulding manufactured by James Hardie Building Products, Inc.
 4. Artisan HZ10 Accent trim as manufactured by James Hardie Building Products, Inc.
 5. Refer to Contract Drawings for information on required sizes and thicknesses.

2.3 FASTENERS

- A. Metal Framing:
1. Metal Framing: 1-1/4 inches No. 8-18 by 0.375 inch head self-drilling, corrosion resistant S-12 ribbed buglehead screws.

2.4 FINISHES

- A. Factory Primer: Provide factory applied universal primer.
1. Primer: Factory primed by James Hardie.
 2. Topcoat: Refer to Exterior Finish Schedule.

PART 3 EXECUTION

3.1 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. Minimum 20 gauge 3-5/8 inch C-Stud 16 inches maximum on center or 16 gauge 3-5/8 inches C-Stud 24 inches 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 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.

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.

- C. Install a water-resistive barrier as 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 weather barrier as specified in SECTION 07 25 00 in accordance with local building code requirements.

3.3 INSTALLATION - HARDIEPLANK HZ10 LAP SIDING AND ARTISAN HZ10 LAP SIDING

- A. Install materials in strict accordance with manufacturer's installation instructions.
- B. Starting: Install a minimum 1/4 inch thick lath starter strip at the bottom course of the wall. Apply planks horizontally with minimum 1-1/4 inches 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. Use off-stud metal joiner in strict accordance with manufacturer's installation instructions.
- H. 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
- I. Locate splices at least 12 inches away from window and door openings.
- J. Face nail to sheathing.
- K. Locate splices at least 12 inches (305 mm) away from window and door openings

3.4 INSTALLATION - HARDIETRIM HZ10 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 or full thickness of sheathing. Additional fasteners may be required to ensure adequate security.
- C. Place fasteners no closer than 3/4 inch and no further than 2 inches from side edge of trim board and no closer than 1 inch from end. Fasten maximum 16 inches 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 from edge spaced 16 inches apart, weather cut each end spaced minimum 12 inches apart.
- G. Allow 1/8 inch gap between trim and siding.
- H. Seal gap with high quality, paint-able caulk.
- I. Fasten through overlapping boards. Do not nail between lap joints.
- J. 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.
- K. Install HardieTrim Fascia boards to rafter tails or to sub fascia.

3.5 FINISHING

- A. Finish unprimed siding with a minimum one coat high quality, alkali resistant primer and one coat of either, 100 percent acrylic or latex or oil based, exterior grade topcoats or two coats high quality alkali resistant 100 percent acrylic or latex, exterior grade topcoat within 90 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.
- B. Finish factory primed siding with a minimum of one coat of high-quality 100 percent acrylic or latex or oil based exterior grade paint within 180 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

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 07 46 00

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Metal Flashing.

1.2 SECTION REQUIREMENTS

- A. Submittals: Product Data and Samples.
- B. Performance Requirements: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.
- C. Installer Qualifications: Engage an experienced installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this project and with a record of successful in-service performance.
- D. Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- E. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 SHEET METAL

- A. Aluminum-zinc alloy-coated steel sheet (Galvalume): ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40
- B. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, with No. 2D finish; not less than 0.016 inch thick.

2.2 ACCESSORIES

- A. Felt Underlayment: ASTM D 226, Type II (No. 30) asphalt-saturated organic felts.
- B. Self-Adhering Sheet Underlayment, High Temperature: Butyl or SBS-modified asphalt; slip-resisting-polyethylene surfaced; with release paper backing; cold applied. Stable after testing at 240 deg F (116 deg C) and passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.
- C. Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.

- D. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners.
 - 1. Exposed Fasteners: Heads matching color of sheet metal roofing using plastic caps or factory-applied coating.
 - 2. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
 - 3. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
 - 4. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
- E. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
- F. Solder for Zinc-Tin Alloy-Coated Stainless Steel: ASTM B 32, 100 percent tin.
- G. Butyl Sealant: ASTM C 1311, solvent-release butyl rubber sealant.
- H. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.3 FABRICATION

- A. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.
- B. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
- C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with SMACNA's "Architectural Sheet Metal Manual." Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.
 - 1. Roof-Edge Flashings: Secure metal flashings at roof edges according to FMG Loss Prevention Data Sheet 1-49 for specified wind zone
- B. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- C. Fabricate nonmoving seams in sheet metal with flat-lock seams. For aluminum, form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

- D. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tem edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pre-temmed surface would show in finished Work.
 - 1. Do not pre-tem zinc-tin alloy-coated stainless steel.
 - 2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
- E. Aluminum Flashing and Trim: Coat back side of aluminum flashing and trim with bituminous coating where it will contact wood, ferrous metal, or cementitious construction.
- F. Separate dissimilar metals with a bituminous coating or polymer-modified, bituminous sheet underlayment.

END OF SECTION 07 62 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and color Samples.
- B. Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS

- A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.
- B. Visible joint sealants used, will be of a coordinating color to the material it's being applied to.
- C. Sealant for Use in Building Expansion Joints:
 - 1. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 50 for Use NT.
- D. Sealant for General Exterior Use Where Another Type Is Not Specified:
 - 1. Single-component, nonsag polysulfide sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT.
 - 2. Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT.
 - 3. Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; and for Use NT.
- E. Sealant for Exterior Traffic-Bearing Joints, Where Slope Precludes Use of Pourable Sealant:
 - 1. Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use T.
- F. Sealant for Exterior Traffic-Bearing Joints, Where Slope Allows Use of Pourable Sealant:
 - 1. Single-component, pourable urethane sealant, ASTM C 920, Type S; Grade P; Class 25; for Use T.
- G. Sealant for Use in Interior Joints in Ceramic Tile and Other Hard Surfaces in Kitchens and Toilet Rooms and Around Plumbing Fixtures:

1. Single-component, mildew-resistant silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT; formulated with fungicide.
- H. Sealant for Interior Use at Perimeters of Door and Window Frames:
 1. Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
- I. Acoustical Sealant:
 1. Nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission as demonstrated by testing according to ASTM E 90.

2.2 MISCELLANEOUS MATERIALS

- A. Provide sealant backings of material 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, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. 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. Provide self-adhesive tape where applicable.
- D. 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.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with ASTM C 1193.
- B. Install sealant backings to support sealants during application and to produce cross-sectional shapes and depths of installed sealants that allow optimum sealant movement capability.
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- D. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal perimeters, control joints, openings, and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions. Comply with ASTM C 919.

END OF SECTION 07 92 00

SECTION 08 11 00 - METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Shop Drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cold-Rolled Steel Sheets: ASTM A 1008/A 1008M, suitable for exposed applications.
- B. Hot-Rolled Steel Sheets: N/A.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, G60 (Z180) or A60 (ZF180).
- D. Frame Anchors: ASTM A 591/A 591M, 40Z (12G) coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, sheet steel complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

2.2 HOLLOW METAL DOORS AND FRAMES

- A. Products:
 - 1. Mesker Door Inc.
 - 2. Republic Builders Products
 - 3. Steel Craft
- B. Fire-Rated Doors and Frames: Labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, based on testing according to NFPA 252.
 - 1. Where indicated provide doors that that have a temperature rise rating of 450 deg F (250 deg C).
- C. Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784.
- D. Doors: Complying with ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level indicated, 1-3/4 inches (44 mm) thick unless otherwise indicated.
 - 1. Interior Doors: Level 2 and Physical Performance Level B (Heavy Duty), Model 2 (Seamless); 18 gauge.
 - 2. Exterior Doors: Level 3 and Physical Performance Level A (Extra Heavy Duty), Model 2 (Seamless), metallic-coated steel sheet faces; 16 gauge.
 - a. Thermal-Rated (Insulated) Doors: Where indicated, provide doors with thermal-resistance value (R-value) of not less than 6.0 deg F x h x sq. ft./Btu (1.057 K x sq. m/W) when tested according to ASTM C 1363.

3. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as door face sheets.
- E. Frames: ANSI A250.8; conceal fastenings unless otherwise indicated.
1. Steel Sheet Thickness for Interior Doors: 0.053 inch (1.3 mm); 16 gauge.
 2. Steel Sheet Thickness for Exterior Doors: 0.053 inch (1.3 mm); 16 gauge.
 3. Fabricate interior frames with mitered or coped and continuously welded corners.
 4. Fabricate exterior frames from metallic-coated steel sheet, with mitered or coped and continuously welded corners.
 5. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.
 6. Frame Anchors: Not less than 0.042 inch (1.0 mm) thick.
- F. Glazing Stops: Nonremovable stops on outside of exterior doors and on secure side of interior doors; screw-applied, removable, glazing stops on inside, fabricated from same material as door face sheet in which they are installed.
- G. Door Louvers: Light proof per SDI 111C.
1. Fire-Rated Automatic Louvers: Actuated by fusible links and listed and labeled.
- H. Door Silencers: Three on strike jambs of single-door frames and two on heads of double-door frames.
- I. Grout Guards: Provide where mortar might obstruct hardware operation.
- J. Prepare doors and frames to receive mortised and concealed hardware according to ANSI A250.6 and ANSI A115 Series standards.
- K. Reinforce doors and frames to receive surface-applied hardware.
- L. Prime Finish: Manufacturer's standard, factory-applied coat of lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install hollow metal frames to comply with ANSI/SDI A250.11.
1. Fire-Rated Frames: Install according to NFPA 80.
- B. Install doors to provide clearances between doors and frames as indicated in ANSI/SDI A250.11.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying rust-inhibitive primer.

END OF SECTION 08 11 00

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Samples for stained and painted doors.

PART 2 - PRODUCTS

2.1 DOOR CONSTRUCTION, GENERAL

- A. Quality Standard: WDMA I.S.1-A.
- B. Fire-Rated Wood Doors: Labeled by a testing and inspecting agency acceptable to authorities having jurisdiction based on testing at positive pressure according to NFPA 252.
 - 1. Where indicated, provide doors that have a temperature rise rating of 450 deg F (250 deg C).
- C. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.
- D. WDMA I.S.1-A Performance Grade:
 - 1. Heavy Duty unless otherwise indicated.
 - 2. Extra Heavy Duty: Classrooms, Public toilets, Janitor's closets, Assembly spaces, Exits.
 - 3. Standard Duty: Closets (not including janitor's closets), Private toilets.
- E. Fire-Protection-Rated Doors: Provide core specified or mineral core as needed to provide fire-protection rating indicated. Provide the following for mineral-core doors:
 - 1. Composite blocking where required to eliminate through-bolting hardware.
 - 2. Laminated-edge construction.
 - 3. Formed-steel edges and astragals for pairs of doors.

2.2 FLUSH WOOD DOORS

- A. Doors for Transparent Finish:
 - 1. Interior Solid-Core Doors: Custom grade, five-ply, structural composite lumber cores.
 - a. Faces: Grade A rotary-cut select white birch.
 - b. Veneer Matching: Book and balance

- c. Continuous matching for doors with transoms.

2.3 LOUVERS AND LIGHT FRAMES

- A. Louvers: Factory-painted steel louvers
- B. Light Frames: Factory-painted steel frames.
 - 1. At fire-rated doors provide factory-painted steel frames approved for use in doors of fire-protection rating indicated.

2.4 FABRICATION AND FINISHING

- A. Factory fit doors to suit frame-opening sizes indicated and to comply with clearances specified.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3.
- C. Cut and trim openings to comply with referenced standards.
 - 1. Trim light openings with moldings indicated.
 - 2. Factory install glazing in doors indicated to be factory finished.
 - 3. Factory install louvers in prepared openings.
- D. Factory finish doors indicated for transparent finish with stain and manufacturer's standard finish complying with WDMA TR-6, catalyzed polyurethane for grade specified for doors.
 - 1. Sheen: Semigloss.
- E. Factory finish doors indicated for opaque finish with manufacturer's standard finish complying with OP-6, catalyzed polyurethane for grade specified for doors.
 - 1. Sheen: Semigloss.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install doors to comply with manufacturer's written instructions and WDMA I.S.1-A, and as indicated.
 - 1. Install fire-rated doors to comply with NFPA 80.
- B. Align and fit doors in frames with uniform clearances and bevels. Machine doors for hardware. Seal cut surfaces after fitting and machining.
- C. Clearances: As follows unless otherwise indicated:

1. 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors.
 2. 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering.
 3. 1/4 inch (6.4 mm) from bottom of door to top of threshold.
 4. Comply with NFPA 80 for fire-rated doors.
- D. Repair, refinish, or replace factory-finished doors damaged during installation, as directed by Architect.

END OF SECTION 08 14 16

SECTION 08 41 13 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Structural Performance: Provide systems, including anchorage, capable of withstanding loads indicated.
 - 1. Main-Framing-Member Deflection: Limited to 1/175 of clear span or 3/4 inch, whichever is smaller.
 - 2. Structural Testing: Systems tested according to ASTM E 330 at 150 percent of inward and outward wind-load design pressures do not evidence material failures, structural distress, deflection failures, or permanent deformation of main framing members exceeding 0.2 percent of clear span.
- B. Air Infiltration: Limited to 0.06 cfm/sq. ft. of system surface area when tested according to ASTM E 283 at a static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa).
- C. Water Penetration: Systems do not evidence water leakage when tested according to ASTM E.
- D. Average U-Factor: Per AAMA 1503
- E. Submittals: Product Data, Shop Drawings, and color Samples.
 - 1. For entrance systems, include hardware schedule and locations.

PART 2 - PRODUCTS

2.1 ALUMINUM-FRAMED STOREFRONTS

- A. Products:
 - 1. Tubelite 14000 Series or Approved Equal
- B. Accessible Entrances: Comply with ICC/ANSI A117.1.
- C. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated; ASTM B 209 sheet; ASTM B 221 extrusions.
- D. Glazing: As specified in Division 8 Section "Glazing."
- E. Sealants and Joint Fillers: For joints at perimeter of systems as specified in Division 7 Section "Joint Sealants."
- F. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.

- G. Doors: 1-3/4-inch- (44.5-mm-) thick glazed doors with minimum 0.125-inch- (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods. Provide snap-on extruded-aluminum glazing stops, and preformed gaskets.
 - 1. Door Design: As indicated on door schedule.
 - 2. Accessible Doors: Smooth surfaced for width of door in area within 10 inches (255 mm) above floor or ground plane.
 - 3. Interior Doors: Provide ANSI/BHMA A156.16 silencers, three on strike jamb of single-door frames and two on head of double-door frames.
 - 4. Exterior Doors: Provide compression weather stripping at fixed stops. At other locations, provide sliding weather stripping retained in adjustable strip mortised into door edge.
 - 5. Hardware: As specified in Division 8 Section "Door Hardware".
- H. Fasteners and Accessories: Compatible with adjacent materials, corrosion resistant, nonstaining, and nonbleeding. Use concealed fasteners except for application of door hardware.
- I. Fabrication: Fabricate framing in profiles indicated for flush glazing (without projecting stops). Provide subframes and reinforcing of types indicated or, if not indicated, as required for a complete system. Factory assemble components to greatest extent possible. Disassemble components only as necessary for shipment and installation.
 - 1. Door Framing: Reinforce to support imposed loads. Factory assemble door and frame units and factory install hardware to greatest extent possible. Reinforce door and frame units for hardware indicated. Cut, drill, and tap for factory-installed hardware before finishing components.
- J. Aluminum Finish: Comply with NAAMMs "Metal Finishes Manual for Architectural and Metal Products." Fluoropolymer three-coat coating system complying with AAMA 2605.
 - 1. Color: TBD from all manufacturer prefinished colors available.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Isolate metal surfaces in contact with incompatible materials, including wood, by painting contact surfaces with bituminous coating or primer, or by applying sealant or tape recommended by manufacturer.
- B. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
- C. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" to produce weathertight installation.

- D. Install framing components true in alignment with established lines and grades to the following tolerances:
 - 1. Variation from Plane: Limit to 1/8 inch in 12 feet (3 mm in 3.7 m).
 - 2. Alignment: For surfaces abutting in line, limit offset to 1/16 inch (1.5 mm). For surfaces meeting at corners, limit offset to 1/32 inch (0.8 mm).
 - 3. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).
- E. Install doors without warp or rack. Adjust doors and hardware to provide tight fit at contact points and smooth operation.

END OF SECTION 08 41 13



SECTION 08 51 13 – ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

- A. Gerkin Windows & Doors Series 5500 is a 2 3/8" Commercial Grade Fixed Window with superior performance capabilities. The series has a poured-in-place thermal break. This window meets or exceeds all AAMA commercial design and performance criteria. The series 5500 fixed window complements the 5100, 5200 and 5300 series windows in horizontal or vertical stacking configurations. A complete line of subframing, panning, mullions, and other accessories is also available.

1.2 SECTION REQUIREMENTS

- A. Submittals: Product Data, Shop Drawings, test reports, warranties and Samples

1.3 WORK INCLUDED

- A. Furnish and install commercial aluminum windows complete with hardware & related components as shown on drawings and specified in this section.
- B. All window shall be Gerkins Windows & Doors Series 5500 Fixed Windows. Other manufactures requesting approval to bid their product as an equal must submit fifteen days prior to close of bidding.
- C. Glass and Glazing

1.4 TESTING AND PERFORMANCE REQUIREMENTS

- A. Test Unit
 - 1. Air, water and structural test unit sizes and configurations shall conform to the requirements set forth in AAMA/NWWDA 101/I.S. 2-97
- B. Test Procedures and Performance



1. Windows shall conform to all AAMA/NWWDA 101/I.S.2-97 F-C80 requirements for the window type referenced in 1.01B. In addition, the following specific performance requirements shall be met.

2. Air Infiltration Test

a. With window sash and ventilator closed and locked, test the unit in accordance with ASTM E 283-84 at static air pressure difference of 6.24 psf.

b. Air infiltration shall not exceed 0.01 cfm per square foot.

3. Water Resistance Test

a. With window sash and ventilator closed and locked, test unit in accordance with ASTM E 547-86 at static air pressure difference of 12.00 psf.

b. There shall be no uncontrolled water leakage.

4. Uniform Load Structural Test

a. With window sash and ventilator closed and locked, test unit in accordance with ASTM E 330-84 at a static air pressure difference of 120 psf positive pressure and 120 psf negative pressure.

b. At the conclusion of test there shall be no glass breakage or permanent damage to fasteners.

1.5 QUALITY ASSURANCE

A. Provide test reports from AAMA accredited labs certifying the performance as specified in 1.04

1.6 WARRANTIES

A. Total Window System

1. the responsible contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total window installation which includes that of the windows, glass (including insulated units), glazing, anchorage, and setting system, sealing, flashing, etc. it relates to air, water, and structural adequacy as called for in the specifications and approved shop drawings.



2. Any deficiencies due to such elements not meeting the specifications shall be corrected by the responsible contractor at his expense during the warranty period.

PART 2 - PRODUCTS

2.1 ALUMINUM WINDOWS

- A. Aluminum: Extruded aluminum shall be 6063-T5 alloy and temper.
- B. Available Products:
 1. Gerkin Series 5500 Thermal Fixed Windows
- C. The following Window Types as indicated on drawings:
 1. Fixed
- D. Glass and glazing per manufacturer.
 1. 1" insulated glazing with 1 1/4" grilles; locations of grilles per drawings.
- E. Thermal Barrier
 1. Barrier material shall be poured-in-place two-part polyurethane. A non-structural thermal barrier is unacceptable.

2.2 FABRICATION

- A. General
 1. All aluminum frame members and sash extrusions shall have a minimum wall thickness of .063".
 2. Mechanical fasteners, welded components and hardware items shall not bridge thermal barriers. Thermal barriers shall align at all frame and sash corners.
 3. Depth of frame shall not be less than 2 3/8"
- B. Frame
 1. Frame components shall be mechanically fastened.



C. Glazing

1. Units shall be glazed with a snap-in aluminum extruded glazing bead and a neoprene drive-in gasket on the interior side of glass. The exterior side of glass shall be set against a continuous closed cell foam tape with a continuous cap bead of General Electric SCS 1001 or equal.

D. Finish

1. Finish all exposed areas of aluminum windows and components with electrostatically deposited color in accordance with Aluminum Association designation AA-M12-C22-A44. Color to be determined.

PART 3 - EXECUTION

3.1 JOB CONDITION

- A. Verify that openings are dimensionally within allowable tolerances, plumb, level, clean, providing a solid anchoring surface and are in accordance with approved shop drawings.

3.2 INSTALLATION

- A. Set units level, plumb, and true to line, without warp or rack of frames and panels. Provide proper support and anchor securely in place.
- B. Set sill members in bed of sealant or with gaskets, as indicated, to provide weathertight construction.
- C. Adjust operating panels, screens, and hardware to provide a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.
- D. Clean aluminum surfaces and glass immediately after installing windows. Remove nonpermanent labels from glass surfaces.

END OF SECTION 08 51 13

SECTION 08 71 00 – DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY:

- A. Section Includes: Finish Hardware for door openings, except as otherwise specified herein.
 - 1. Door hardware for steel (hollow metal) doors.
 - 2. Door hardware for aluminum doors.
 - 3. Door hardware for wood doors.
 - 4. Door hardware for other doors indicated.
 - 5. Keyed cylinders as indicated.
- B. Related Sections:
 - 1. Division 6: Rough Carpentry.
 - 2. Division 8: Aluminum Doors and Frames
 - 3. Division 8: Hollow Metal Doors and Frames.
 - 4. Division 8: Wood Doors.
 - 5. Electrical components depicted in Electrical Engineering Drawings and Door Schedules
- C. References: Comply with applicable requirements of the following standards. Where these standards conflict with other specific requirements, the most restrictive shall govern.
 - 1. Builders Hardware Manufacturing Association (BHMA)
 - 2. NFPA 101 Life Safety Code
 - 3. NFPA 80 -Fire Doors and Windows
 - 4. ANSI-A156.xx- Various Performance Standards for Finish Hardware
 - 5. UL10C – Positive Pressure Fire Test of Door Assemblies
 - 6. ANSI-A117.1 – Accessible and Usable Buildings and Facilities
 - 7. DHI /ANSI A115.IG – Installation Guide for Doors and Hardware
 - 8. ICC – International Building Code
- D. Intent of Hardware Groups
 - 1. Should items of hardware not definitely specified be required for completion of the Work, furnish such items of type and quality comparable to adjacent hardware and appropriate for service required.
 - 2. Where items of hardware aren't definitely or correctly specified, are required for completion of the Work, a written statement of such omission, error, or other discrepancy to be submitted to Architect, prior to date specified for receipt of bids for clarification by addendum; or, furnish such items in the type and quality established by this specification, and appropriate to the service intended.
- E. Allowances
 - 1. Refer to Division 1 for allowance amount and procedures.
- F. Alternates
 - 1. Refer to Division 1 for Alternates and procedures.

1.2 SUBSTITUTIONS:

- A. Comply with Division 1.

1.3 SUBMITTALS:

- A. Comply with Division 1.
- B. Special Submittal Requirements: Combine submittals of this Section with Sections listed below to ensure the "design intent" of the system/assembly is understood and can be reviewed together.
- C. Product Data: Manufacturer's specifications and technical data including the following:
 - 1. Detailed specification of construction and fabrication.
 - 2. Manufacturer's installation instructions.
 - 3. Wiring diagrams for each electric product specified. Coordinate voltage with electrical before submitting.
 - 4. Submit 6 copies of catalog cuts with hardware schedule.
- D. Shop Drawings - Hardware Schedule: Submit 6 complete reproducible copy of detailed hardware schedule in a vertical format.
 - 1. List groups and suffixes in proper sequence.
 - 2. Completely describe door and list architectural door number.
 - 3. Manufacturer, product name, and catalog number.
 - 4. Function, type, and style.
 - 5. Size and finish of each item.
 - 6. Mounting heights.
 - 7. Explanation of abbreviations and symbols used within schedule.
 - 8. Detailed wiring diagrams, specially developed for each opening, indicating all electric hardware, security equipment and access control equipment, and door and frame rough-ins required for specific opening.
- E. Templates: Submit templates and "reviewed Hardware Schedule" to door and frame supplier and others as applicable to enable proper and accurate sizing and locations of cutouts and reinforcing.
 - 1. Templates, wiring diagrams and "reviewed Hardware Schedule" of electrical terms to electrical for coordination and verification of voltages and locations.
- F. Samples: (If requested by the Architect)
 - 1. 1 sample of Lever and Rose/Escutcheon design, (pair).
 - 2. 3 samples of metal finishes
- G. Contract Closeout Submittals: Comply with Division 1 including specific requirements indicated.
 - 1. Operating and maintenance manuals: Submit 3 sets containing the following.
 - a. Complete information in care, maintenance, and adjustment, and data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Name, address, and phone number of local representative for each manufacturer.
 - d. Parts list for each product.
 - 2. Copy of final hardware schedule, edited to reflect, "As installed".
 - 3. Copy of final keying schedule
 - 4. As installed "Wiring Diagrams" for each piece of hardware connected to power, both low voltage and 110 volts.

5. One set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

1.4 QUALITY ASSURANCE

A. Comply with Division 1.

1. Statement of qualification for distributor and installers.
2. Statement of compliance with regulatory requirements and single source responsibility.
3. Distributor's Qualifications: Firm with 3 years experience in the distribution of commercial hardware.
 - a. Distributor to employ full time Architectural Hardware Consultants (AHC) for the purpose of scheduling and coordinating hardware and establishing keying schedule.
 - b. Hardware Schedule shall be prepared and signed by an AHC.
4. Installer's Qualifications: Firm with 3 years experienced in installation of similar hardware to that required for this Project, including specific requirements indicated.
5. Regulatory Label Requirements: Provide testing agency label or stamp on hardware for labeled openings.
 - a. Provide UL listed hardware for labeled and 20 minute openings in conformance with requirements for class of opening scheduled.
 - b. Underwriters Laboratories requirements have precedence over this specification where conflict exists.
6. Single Source Responsibility: Except where specified in hardware schedule, furnish products of only one manufacturer for each type of hardware.

- B. Review Project for extent of finish hardware required to complete the Work. Where there is a conflict between these Specifications and the existing hardware, notify the Architect in writing and furnish hardware in compliance with the Specification unless otherwise directed in writing by the Architect.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping: Comply with Division 1.

1. Deliver products in original unopened packaging with legible manufacturer's identification.
2. Package hardware to prevent damage during transit and storage.
3. Mark hardware to correspond with "reviewed hardware schedule".
4. Deliver hardware to door and frame manufacturer upon request.

- B. Storage and Protection: Comply with manufacturer's recommendations.

1.6 PROJECT CONDITIONS:

- A. Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for the proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents.
- B. Review Shop Drawings for doors and entrances to confirm that adequate provisions will be made for the proper installation of hardware.

1.7 WARRANTY:

- A. Refer to Conditions of the Contract

B. Manufacturer's Warranty:

1. Closers: Ten years
2. Exit Devices: Five Years
3. Locksets & Cylinders: Three years
4. All other Hardware: Two years.

1.8 OWNER'S INSTRUCTION:

- A. Instruct Owner's personnel in operation and maintenance of hardware units.

1.9 MAINTENANCE:

- A. Extra Service Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals Section.
1. Special Tools: Provide special wrenches and tools applicable to each different or special hardware component.
 2. Maintenance Tools: Provide maintenance tools and accessories supplied by hardware component manufacturer.
 3. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra service materials.
- B. Maintenance Service: Submit for Owner's consideration maintenance service agreement for electronic products installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. The following manufacturers are approved subject to compliance with requirements of the Contract Documents. Approval of manufacturers other than those listed shall be in accordance with Division 1.

<u>Item:</u>	<u>Manufacturer:</u>	<u>Approved:</u>
Hinges	Stanley	Bommer, McKinney
Continuous Hinges	National Guard	Stanley, ABH
Locksets	Best 45H	
Cylinders	Best 1E	
Exit Devices	Precision 2000	Von Duprin 89/99,
Closers	Stanley D-4550	Dorma 8900, LCN4040XP
Access Control System	By Access Control Vendor	
Push/Pull Plates	Trimco	Burns, Rockwood
Protection Plates	Trimco	Burns, Rockwood
Overhead Stops	ABH	Rixson, Glynn Johnson
Door Stops	Trimco	Burns, Rockwood
Flush Bolts	Trimco	ABH, Burns
Coordinator & Brackets	Trimco	ABH, Burns
Threshold & Gasketing	National Guard	Reese, K.N. Crowder

2.2 MATERIALS:

- A. Hinges: Shall be Five Knuckle Ball bearing hinges

1. Template screw hole locations
2. Bearings are to be fully hardened.
3. Bearing shell is to be consistent shape with barrel.
4. Minimum of 2 permanently lubricated non-detachable bearings on standard weight hinge and 4 permanently lubricated bearing on heavy weight hinges.
5. Equip with easily seated, non-rising pins.
6. Non Removable Pin screws shall be slotted stainless steel screws.
7. Hinges shall be full polished, front, back and barrel.
8. Hinge pin is to be fully plated.
9. Bearing assembly is to be installed after plating.
10. Sufficient size to allow 180-degree swing of door
11. Furnish five knuckles with flush ball bearings
12. Provide hinge type as listed in schedule.
13. Furnish 3 hinges per leaf to 7 foot 6 inch height. Add one for each additional 30 inches in height or fraction thereof.
14. Tested and approved by BHMA for all applicable ANSI Standards for type, size, function and finish
15. UL10C listed for Fire rated doors.

B. Geared Continuous Hinges:

1. Tested and approved by BHMA for ANSI A156.26-1996 Grade 1
2. Anti-spinning through fastener
3. UL10C listed for 3 hour Fire rating
4. Non-handed
5. Lifetime warranty
6. Provide Fire Pins for 3-hour fire ratings
7. Sufficient size to permit door to swing 180 degrees

C. Mortise Type Locks and Latches:

1. Tested and approved by BHMA for ANSI A156.13, Series 1000, Operational Grade 1, Extra-Heavy Duty, Security Grade 2 and be UL10C.
2. Furnish UL or recognized independent laboratory certified mechanical operational testing to 4 million cycles minimum.
3. Provide 9001-Quality Management and 14001-Environmental Management.
4. Fit ANSI A115.1 door preparation
5. Functions and design as indicated in the hardware groups
6. Solid, one-piece, 3/4-inch (19mm) throw, anti-friction latchbolt made of self-lubricating stainless steel
7. Deadbolt functions shall have 1 inch (25mm) throw bolt made of hardened stainless steel
8. Latchbolt and Deadbolt are to extend into the case a minimum of 3/8 inch (9.5mm) when fully extended
9. Auxiliary deadlatch to be made of one piece stainless steel, permanently lubricated
10. Provide sufficient curved strike lip to protect door trim
11. Lever handles must be of forged or cast brass, bronze or stainless steel construction and conform to ANSI A117.1. Levers that contain a hollow cavity are not acceptable
12. Lock shall have self-aligning, thru-bolted trim
13. Levers to operate a roller bearing spindle hub mechanism
14. Mortise cylinders of lock shall have a concealed internal setscrew for securing the cylinder to the lockset. The internal setscrew will be accessible only by removing the core, with the control key, from the cylinder body.
15. Spindle to be designed to prevent forced entry from attacking of lever
16. Provide locksets with 7-pin removable and interchangeable core cylinders
17. Each lever to have independent spring mechanism controlling it
18. Core face must be the same finish as the lockset.

D. Exit Devices:

1. Exit devices to meet or exceed BHMA for ANSI 156.3, Grade 1.
2. Exit devices to be tested and certified by UL or by a recognized independent laboratory for mechanical operational testing to 10 million cycles minimum with inspection confirming Grade 1 Loaded Forces have been maintained.
3. Exit devices chassis to be investment cast steel, zinc dichromate.
4. Exit devices to have stainless steel deadlocking $\frac{3}{4}$ " through latch bolt.
5. Exit devices to be equipped with sound dampening on touchbar.
6. Non-fire rated exit devices to have cylinder dogging.
7. Non-fire rated exit devices to have $\frac{1}{4}$ " minimum turn hex key dogging.
8. Touchpad to be "T" style constructed of architectural metal with matching metal end caps.
9. Touchbar assembly on wide style exit devices to have a $\frac{1}{4}$ " clearance to allow for vision frames.
10. All exposed exit device components to be of architectural metals and "true" architectural finishes.
11. Provide strikes as required by application.
12. Fire exit hardware to conform to UL10C and UBC 7-2. UL tested for Accident Hazard.
13. The strike is to be black powder coated finish.
14. Exit devices to have field reversible handing.
15. Provide heavy duty vandal resistant lever trim with heavy duty investment cast stainless steel components and extra strength shock absorbing overload springs. Lever shall not require resetting. Lever design to match locksets and latchsets.
16. Provide 9001-Quality Management and 14001-Environmental Management.
17. Vertical Latch Assemblies to have gravity operation, no springs.
18. Approved Manufacturers
 - a. The following manufacturers will be approved contingent on meeting or exceeding the above performance criteria:
 - 1) Precision Manufactured by Stanley Security Solutions

E. Door Closers shall:

1. Tested and approved by BHMA for ANSI 156.4, Grade 1
2. UL10C certified
3. Provide 9001-Quality Management and 14001-Environmental Management.
4. Closer shall have extra-duty arms and knuckles
5. Conform to ANSI 117.1
6. Maximum 2 7/16 inch case projection with non-ferrous cover
7. Separate adjusting valves for closing and latching speed, and backcheck
8. Provide adapter plates, shim spacers and blade stop spacers as required by frame and door conditions
9. Full rack and pinion type closer with 1½" minimum bore
10. Mount closers on non-public side of door, unless otherwise noted in specification
11. Closers shall be non-handed, non-sized and multi-sized.

F. Door Stops: Provide a dome floor or wall stop for every opening as listed in the hardware sets.

1. Wall stop and floor stop shall be wrought bronze, brass or stainless steel.
2. Provide fastener suitable for wall construction.
3. Coordinate reinforcement of walls where wall stop is specified.
4. Provide dome stops where wall stops are not practical. Provide spacers or carpet riser for floor conditions encountered

G. Over Head Stops: Provide a Surface mounted or concealed overhead when a floor or wall stop cannot be used or when listed in the hardware set.

1. Surface overhead stops shall be heavy duty bronze or stainless steel.

- H. Push Plates: Provide with four beveled edges ANSI J301, .050 thickness, size as indicated in hardware set. Furnish oval-head countersunk screws to match finish.
- I. Pulls with plates: Provide with four beveled edges ANSI J301, .050 thickness Plates with ANSI J401 Pull as listed in hardware set. Provide proper fasteners for door construction.
- J. Kickplates: Provide with four beveled edges ANSI J102, 10 inches high by width less 2 inches on single doors and 1 inch on pairs of doors. Furnish oval-head countersunk screws to match finish.
- K. Mop plates: Provide with four beveled edges ANSI J103, 4 inches high by width less 1 inch on single doors and 1 inch on pairs of doors. Furnish oval-head countersunk screws to match finish.
- L. Door Bolts: Flush bolts for wood or metal doors.
 - 1. Provide a set of Automatic bolts, Certified ANSI/BHMA 156.3 Type 25 for hollow metal label doors.
 - 2. Provide a set of Automatic bolts, Certified ANSI/BHMA 156.3 Type 27 at wood label doors.
 - 3. Manual flush bolts, Certified ANSI/BHMA 156.16 at openings where allowed local authority.
 - 4. Provide Dust Proof Strike, Certified ANSI/BHMA 156.16 at doors with flush bolts without thresholds.
- M. Coordinator and Brackets: Provide a surface mounted coordinator when automatic bolts are used in the hardware set.
 - 1. Coordinator, Certified ANSI/BHMA A1156.3 Type 21A for full width of the opening.
 - 2. Provide mounting brackets for soffit applied hardware.
 - 3. Provide hardware preparation (cutouts) for latches as necessary.
- N. Quick Connect Power Transfer: Power transfer device shall be a steel housing and flexible tube. Secure and inconspicuous channel is to bring power from the frame to the door.
 - 1. Precision EPT-12C
 - 2. Tube shall contain 12 Wire bundle with Stanley Quick Connect Connectors one 4 wire connector consisting of two 18AWG wires and 2 24AWG wires and one 8 wire connector with 8 24AWG wires.
- O. Quick Connect plug-in connectors: Stanley quick connect plug-in must be used with a combination of the following components to work as a complete plug and play system.
 - 1. Best locks series 45HW, 45HM, 8KW, 9KW, 9KM
 - 2. To include Quick connectors to Best lock products Suffix "C" Example (45HW-7DEL14H DS C)
 - 3. Precision Exit Devices 2000 Series, DE, DS, TS, TDS, LDS, ELR
 - 4. To include Quick connectors to Precision Electric Exit device products Prefix "C" Example (C ELR 2108 x V4908A TS)
 - 5. Precision 12 Conductor Electric Power Transfer EPT-12C
 - 6. Stanley 12 Hinges Conductor Hinge CECB179-12C
- P. Quick Connect Wire Harnesses: The Quick Connect wire harness shall have of one four wire connector and one eight wire connector. The four wire connector has two 18AWG and two 24AWG wires. The eight wire connector has eight 24AWG wires Stanley quick connect wire harnesses are available in various length's, 3" (76mm), 6" (152mm), 12" (304mm), 26" (660mm) 32" (812mm) 38" (965mm), 44" (1117mm), 50" (1270mm) and 192" (4876mm).
 - 1. Wire Harness that is terminated at both ends is specified as WH-size (Example WH-3).
 - 2. Wire Harness that is terminated at one end with exposed pin head at the other is specified as WH-size P (Example WH-3P).
 - 3. Wire Harness 6" (152mm) terminated at one end with bray leads on the other is specified as WH-6E.

Notes The Wire harnesses with suffix "E" has brae wire ends, is used to connect the quick connect harness to a hardwired connection.

Wire harnesses of different lengths may be combined to form a desired length
The maximum size hole needed to pass through the quick connect plug is 1" (25MM).

- Q. Seals: All seals shall be finished to match adjacent frame color. Seals shall be furnished as listed in schedule. Material shall be UL listed for labeled openings.
- R. Weatherstripping: Provide at head and jambs only those units where resilient or flexible seal strip is easily replaceable. Where bar-type weatherstrip is used with parallel arm mounted closers install weatherstrip first.
 - 1. Weatherstrip shall be resilient seal of Polyurethane.
 - 2. UL10C Positive Pressure rated seal set when required.
- S. Door Bottoms/Sweeps: Surface mounted or concealed door bottom where listed in the hardware sets.
 - 1. Door seal shall be resilient seal of, Nylon Brush.
 - 2. UL10C Positive Pressure rated seal set when required.
- T. Thresholds: Thresholds shall be aluminum beveled type with maximum height of ½" for conformance with ADA requirements. Furnish as specified and per details. Provide fasteners and screws suitable for floor conditions.
- U. Silencers: Furnish silencers on all interior frames, 3 for single doors, 2 for pairs. Omit where any type of seals occur.

2.3 FINISH:

- A. Designations used in Schedule of Finish Hardware - 3.05, and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 including coordination with traditional U.S. finishes shown by certain manufacturers for their products
- B. Powder coat door closers to match other hardware, unless otherwise noted.
- C. Aluminum items shall be finished to match predominant adjacent material. Seals to coordinate with frame color.

2.4 KEYS AND KEYING:

- A. Provide keyed brass construction cores and keys during the construction period. Construction control and operating keys and core shall not be part of the Owner's permanent keying system or furnished in the same keyway (or key section) as the Owner's permanent keying system. Permanent cores and keys (prepared according to the accepted keying schedule) will be furnished to the Owner.
- B. Cylinders, removable and interchangeable core system: Best CORMAX™ Patented 7-pin.
- C. Permanent keys and cores: Stamped with the applicable key mark for identification. These visual key control marks or codes will not include the actual key cuts. Permanent keys will also be stamped "Do Not Duplicate."
- D. Transmit Grand Masterkeys, Masterkeys and other Security keys to Owner by Registered Mail, return receipt requested.
- E. Furnish keys in the following quantities:

1. 1 each Grand Masterkeys
 2. 4 each Masterkeys
 3. 2 each Change keys each keyed core
 4. 15 each Construction masterkeys
 5. 1 each Control keys
- F. The Owner, or the Owner's agent, will install permanent cores and return the construction cores to the Hardware Supplier. Construction cores and keys remain the property of the Hardware Supplier.
- G. Keying Schedule: Arrange for a keying meeting, and programming meeting with Architect Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying and programming complies with project requirements. Furnish 3 typed copies of keying and programming schedule to Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of conditions: Examine doors, frames, related items and conditions under which Work is to be performed and identify conditions detrimental to proper and or timely completion.
1. Do not proceed until unsatisfactory conditions have been corrected.

3.2 HARDWARE LOCATIONS:

- A. Mount hardware units at heights indicated in the following publications except as specifically indicated or required to comply with the governing regulations.
1. Recommended Locations for Builder's Hardware for Standard Steel Doors and Frames, by the Door and Hardware Institute (DHI).
 2. Recommended locations for Architectural Hardware for flush wood doors (DHI).
 3. WDMA Industry Standard I.S.-1A-04, Industry Standard for Architectural wood flush doors.

3.3 INSTALLATION:

- A. Install each hardware item per manufacturer's instructions and recommendations. Do not install surface mounted items until finishes have been completed on the substrate. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- B. Conform to local governing agency security ordinance.
- C. Install Conforming to ICC/ANSI A117.1 Accessible and Usable Building and Facilities.
1. Adjust door closer sweep periods so that from the open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the landing side of the door.
- D. Installed hardware using the manufacturers fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use "Riv-Nuts" or similar products.

3.4 FIELD QUALITY CONTROL AND FINAL ADJUSTMENT

- A. Contractor/Installers, Field Services: After installation is complete, contractor shall inspect the completed door openings on site to verify installation of hardware is complete and properly adjusted, in accordance with both the Contract Documents and final shop drawings.
1. Check and adjust closers to ensure proper operation.
 2. Check latchset, lockset, and exit devices are properly installed and adjusted to ensure proper operation.
 - a. Verify levers are free from binding.
 - b. Ensure latchbolts and dead bolts are engaged into strike and hardware is functioning.
 3. Report findings, in writing, to architect indicating that all hardware is installed and functioning properly. Include recommendations outlining corrective actions for improperly functioning hardware if required.

3.5 SCHEDULE OF FINISH HARDWARE:

Manufacturer List

<u>Code</u>	<u>Name</u>
AB	ABH Manufacturing Inc.
AD	Adams Rite
BE	Best Access Systems
BY	By Others
NA	National Guard
PR	Precision
SD	Stanley Door Closers
ST	Stanley
TR	Trimco

Option List

<u>Code</u>	<u>Description</u>
C	Quick Connect Wiring System
FL	Fire Exit Hardware
SN	Sex Nuts (Pkg. of 4)
TS	TOUCHBAR MONITORING SWITCH
VT	Vandal Trim (630 Finish)
VT	Vandal Trim (Other Finishes)
B4E	BEVELED 4 EDGES - KICK PLATES
CSK	COUNTER SINKING OF KICK and MOP PLATES
FSE	Fail Secure
MLR	MOTORIZED LATCH RETRACTION
VIB	Double Visual Indicator Option
C181	CAM-ADAMS RITE MS CAM
S301	OPT. ROLLER. STRK - RIM AND TOP OF SVR
CA-03	Cylinder Attachment Kit (Rim/SVR Device)
SNB (2)	SEX BOLTS (2)
EPT-Prep	EPT Prep
P45HD-110	Spacer Block HD Arm on Rabbet
P45HD-112	Angle Brkt. - Shoe Support HD Arms

Finish List

<u>Code</u>	<u>Description</u>
AL	Aluminum
130	RiteCoat Painted - Satin Aluminum
626	Satin Chromium Plated
628	Satin Aluminum, Clear Anodized
630	Satin Stainless Steel
689	Aluminum Painted
GREY	Grey
BLACK	Black
US26D	Chromium Plated, Dull
US32D	Stainless Steel, Dull

STATION 2
Hardware Sets

SET #01

Doors: 101, 110

1	Continuous Hinge	HD2400A 83"		NA
1	Deadlatch	4900	628	AD
1	Mortise Cylinder	1E-74 PATD C181	626	BE
1	Push/Pull Set	1738 36"	630	TR
1	Door Closer	CLD-3550 CS P45HD-110 SN	689	SD
1	Lever Handle	4568-X01	130	AD
1	Integral Perimeter Seals	By Frame Mfg.		BY
1	Door Sweep	C627 A 36"		NA
1	Integral Door Bottom	By Door Mfg.		BY
1	Saddle Threshold	425 36"	AL	NA

SET #02

Doors: 101.1

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Lockset	45H-7D14H PATD VT	626	BE
1	Overhead Holder	4414	US26D	AB
1	Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1	Auto Dr. Bottom-Wood Door	423 N 36"		NA

SET #03

Doors: 104

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Lockset	45H-7R14H PATD VT	626	BE
1	Door Closer	CLD-4550 EDA SN	689	SD
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Floor Stop	1211	626	TR
3	Door Silencers	1229A	GREY	TR

SET #04

Doors: 102B

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Lockset	45H-7R14H PATD VT	626	BE
1	Door Closer	CLD-4550 STD W/PA BRKT SN	689	SD
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Floor Stop	1211	626	TR
3	Door Silencers	1229A	GREY	TR

STATION 2
Hardware Sets

SET #05

Doors: 103

6 Hinges	FBF179 4 1/2 X 4 1/2	US26D	ST
1 Manual Flushbolt	3917 Mtd. Bottom	626	TR
1 Self-Latching Flushbolt	3820 Mtd Top	626	TR
1 Lockset	45H-7R14H PATD VT	626	BE
1 Dummy Trim	45H-01DT14H VT	626	BE
2 Overhead Stop	4421	US26D	AB
1 Dustproof Strike	3910	626	TR
2 Door Silencers	1229A	GREY	TR

SET #06

Doors: 138

3 Hinges	FBF179 4 1/2 X 4 1/2	US26D	ST
1 Passage Set	45H-0N14H VT	626	BE
1 Door Closer	CLD-4550 EDA SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
3 Door Silencers	1229A	GREY	TR

SET #07

Doors: 107

3 Hinges	FBF179 4 1/2 X 4 1/2	US26D	ST
1 Passage Set	45H-0N14H VT	626	BE
1 Door Closer	CLD-4550 STD W/PA BRKT SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
3 Door Silencers	1229A	GREY	TR

SET #08

Doors: 106, 124, 125, 132

3 Hinges	FBF191 4 1/2 X 4 1/2	US32D	ST
1 Privacy Set	45H-0LT14H VIB VT	626	BE
1 Door Closer	CLD-4550 STD W/PA BRKT SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
1 Coat Hook	3071	630	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Perimeter Seals	5060 B 1 x 36" 2 x 84"		NA
1 Auto Dr. Bottom-Wood Door	423 N 36"		NA

STATION 2
Hardware Sets

SET #09

Doors: 122, 123, 126, 127, 128, 129, 131

3 Hinges	FBB191 4 1/2 X 4 1/2	US32D	ST
1 Privacy Set	45H-0LT14H VIB VT	626	BE
1 Door Closer	CLD-4550 TCS SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
1 Coat Hook	3071	630	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Perimeter Seals	5060 B 1 x 36' 2 x 84"		NA
1 Acoustic Seal	60FP		NA
1 Auto Dr. Bottom-Wood Door	423 N 36"		NA

SET #10

Doors: 108, 121B, 137

1 Continuous Hinge	HD2400A 83"		NA
1 Exit Device	FL 2114 X 4914D S301 SNB (2)	630	PR
1 Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1 Perimeter Seals	5060 B 1 x 36' 2 x 84"		NA
1 Auto Dr Bottom-Metal Doors	320 S 36"		NA

SET #11

Doors: 136

3 Hinges	FBB191 4 1/2 X 4 1/2	US32D	ST
1 Passage Set	45H-0N14H VT	626	BE
1 Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Auto Dr Bottom-Metal Doors	320 S 36"		NA

SET #12

Doors: 120

1 Continuous Hinge	HD2400A 83"		NA
1 Pull Plate	1018-3	630	TR
1 Push Plate	1001-3	630	TR
1 Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1 Wall Bumper	1270CV	626	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Auto Dr. Bottom-Wood Door	423 N 36"		NA

STATION 2
Hardware Sets

SET #13

Doors: 119

1	Continuous Hinge	HD2400A 83"		NA
1	Pull Plate	1018-3	630	TR
1	Push Plate	1001-3	630	TR
1	Door Closer	CLD-4550 HT SN	689	SD
1	Wall Bumper	1270CV	626	TR
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1	Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1	Auto Dr. Bottom-Wood Door	423 N 36"		NA

SET #14

Doors: 112

2	Continuous Hinge	HD2400A 83"		NA
1	Manual Flushbolt	3917 Mtd. Bottom	626	TR
1	Self-Latching Flushbolt	3820 Mtd Top	626	TR
1	Lockset	45H-7TD14H PATD VT	630	BE
1	Coordinator	3094B2	BLACK	TR
2	Overhead Holder	9014	US32D	AB
2	Door Sweep	C627 A 36"		NA
1	Astragal	139 SP 84"		NA
1	Perimeter Gasket	5075 B 1 x 72" 2 x 84"		NA
1	Threshold	896 S 72"	AL	NA

SET #15

Doors: 115, 116, 117

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	45H-7R14H PATD VT	626	BE
1	Overhead Stop	4424	US26D	AB
1	Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1	Coat Hook	3071	630	TR
3	Door Silencers	1229A	GREY	TR

STATION 2
Hardware Sets

SET #16

Doors: 121A

1	Continuous Hinge	HD2400A 83" EPT-Prep		NA
1	Power Transfer	EPT-12C		PR
1	Exit Device	C MLR TS 2103 CA-03 FSE S301 SNB (2)	630	PR
1	Rim Cylinder	12E-72 PATD	626	BE
1	Door Pull	1191-4J	630	TR
1	Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1	Door Sweep	C627 A 36"		NA
1	Integral Perimeter Seals	By Frame Mfg.		BY
1	Integral Door Bottom	By Door Mfg.		BY
1	Threshold	896 S 36"	AL	NA
1	Wire Harness-Exit Device	WH-6E		ST
1	Wire Harness-Exit Device	WH-26P		ST
1	Wire Harness-Exit Device	WH-192P		ST
1	Power Supply-Exit Device	RPSMLR2BB		PR
1	Power Supply-Card Reader	By Access Control Vendor		BY
1	Door Position Switch	By Access Control Vendor		BY
1	Card Reader	By Access Control Vendor		BY

NOTE: Description of Operation: With a valid card read the electric fail secure exit device unlocks allowing ingress into the building, note free egress at all times. When power is lost to the building the fail secure exit device will remain locked and require a key entry for ingress if required. All trades to collaborate from the General Contractor, Electrical Contractor, Hardware Supplier and Access Control Supplier to install all the necessary hardware to have and successful and operating access control system. All wiring and installation of wiring per Section 260000 and Section 280000.

SET #17

Doors: 102A, 105A

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Power Transfer	EPT-12C		PR
1	Elec. Lock-Fail Safe	45HW-7DEL14H PATD C VT	630	BE
1	Door Closer	CLD-4551 EDA SN	689	SD
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Wall Bumper	1270CV	626	TR
1	Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1	Auto Dr. Bottom-Wood Door	423 N 36"		NA
1	Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1	Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1	Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1	Power Supply-Card Reader	By Access Control Vendor		BY
1	Door Position Switch	By Access Control Vendor		BY
1	Card Reader	By Access Control Vendor		BY

NOTE: Description of Operation: With a valid card read the electric fail safe lock unlocks allowing entry. Lockset to be tied to building fire panel and when notified from fire panel will unlock for free ingress and egress. All wiring and installation of wiring per Section 260000 and Section 280000.

STATION 2
Hardware Sets

SET #18

Doors: 135

3 Hinges	FBB191 4 1/2 X 4 1/2	US32D	ST
1 Power Transfer	EPT-12C		PR
1 Elec. Lock-Fail Safe	45HW-7DEL14H PATD C VT	630	BE
1 Door Closer	CLD-4551 CS P45HD-110 P45HD-112 SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Door Sweep	C627 A 36"		NA
1 Auto Dr Bottom-Metal Doors	320 S 36"		NA
1 Saddle Threshold	425 36"	AL	NA
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Power Supply-Card Reader	By Access Control Vendor		BY
1 Door Position Switch	By Access Control Vendor		BY
1 Card Reader	By Access Control Vendor		BY

NOTE: Description of Operation: With a valid card read the electric fail safe lock unlocks allowing entry. Lockset to be tied to building fire panel and when notified from fire panel will unlock for free ingress and egress. All wiring and installation of wiring per Section 260000 and Section 280000.

SET #19

Doors: 143G

1 Continuous Hinge	HD2400A 83" EPT-Prep		NA
1 Power Transfer	EPT-12C		PR
1 Elec. Lock-Fail Secure	45HW-7DEU14H PATD C VT	630	BE
1 Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Door Sweep	C627 A 36"		NA
1 Threshold	896 S 36"	AL	NA
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Power Supply-Card Reader	By Access Control Vendor		BY
1 Door Position Switch	By Access Control Vendor		BY
1 Card Reader	By Access Control Vendor		BY

STATION 2
Hardware Sets

SET #20

Doors: 142

2	Continuous Hinge	HD2400A 83"		NA
1	Lockset	45H-7TD14H PATD VT	630	BE
1	Self-Latching Flushbolt	3820 Mtd Top	626	TR
1	Manual Flushbolt	3917 Mtd. Bottom	626	TR
2	Overhead Holder	9014	US32D	AB
2	Kick Plate	K0050 8" x 35" B4E CSK	630	TR
1	Astragal	139 SP 84"		NA
1	Drip Cap	16 A 76"		NA
2	Door Sweep	C627 A 36"		NA
1	Perimeter Gasket	5075 B 1 x 72" 2 x 84"		NA
1	Threshold	896 S 72"	AL	NA

SET #21

Doors: 141

6	Hinges	FBB199 4 1/2 X 4 1/2	US32D	ST
1	Manual Flushbolt	3917 Mtd. Bottom	626	TR
1	Self-Latching Flushbolt	3820 Mtd Top	626	TR
1	Lockset	45H-7D14H PATD VT	626	BE
1	Coordinator	3094B2	BLACK	TR
2	Overhead Stop	9024	US32D	AB
2	Kick Plate	K0050 8" x 35" B4E CSK	630	TR
2	Door Sweep	C627 A 36"		NA
1	Astragal	139 SP 84"		NA
1	Perimeter Gasket	5075 B 1 x 72" 2 x 84"		NA
1	Saddle Threshold	425	AL	NA

SET #22

Doors: 118

1	Bi-fold Track/Hardware	BFC50-00-36		ST
4	Back Plate	BP1	630	TR
2	Cabinet Pull	571-6	630	TR

STATION 2
Opening List

Opening	Hdw Set
101	01
101.1	02
102A	17
102B	04
103	05
104	03
105A	17
106	08
107	07
108	10
110	01
112	14
115	15
116	15
117	15
118	22
119	13
120	12
121A	16
121B	10
122	09
123	09
124	08
125	08
126	09
127	09
128	09
129	09
131	09
132	08
135	18
136	11
137	10
138	06
141	21
142	20
143G	19

STATION 4 Hardware Sets

SET #01

Doors: 101, 110

1	Continuous Hinge	HD2400A 83"		NA
1	Deadlatch	4900	628	AD
1	Mortise Cylinder	1E-74 PATD C181	626	BE
1	Push/Pull Set	1738 36"	630	TR
1	Door Closer	CLD-3550 CS P45HD-110 SN	689	SD
1	Lever Handle	4568-X01	130	AD
1	Integral Perimeter Seals	By Frame Mfg.		BY
1	Door Sweep	C627 A 36"		NA
1	Integral Door Bottom	By Door Mfg.		BY
1	Saddle Threshold	425 36"	AL	NA

SET #02

Doors: 101.1

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Lockset	45H-7D14H PATD VT	626	BE
1	Overhead Holder	4414	US26D	AB
1	Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1	Auto Dr. Bottom-Wood Door	423 N 36"		NA

SET #03

Doors: 104

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Lockset	45H-7R14H PATD VT	626	BE
1	Door Closer	CLD-4550 EDA SN	689	SD
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Floor Stop	1211	626	TR
3	Door Silencers	1229A	GREY	TR

SET #04

Doors: 102B

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Lockset	45H-7R14H PATD VT	626	BE
1	Door Closer	CLD-4550 STD W/PA BRKT SN	689	SD
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Floor Stop	1211	626	TR
3	Door Silencers	1229A	GREY	TR

STATION 4 Hardware Sets

SET #05

Doors: 103

6 Hinges	FBF179 4 1/2 X 4 1/2	US26D	ST
1 Manual Flushbolt	3917 Mtd. Bottom	626	TR
1 Self-Latching Flushbolt	3820 Mtd Top	626	TR
1 Lockset	45H-7R14H PATD VT	626	BE
1 Dummy Trim	45H-01DT14H VT	626	BE
2 Overhead Stop	4421	US26D	AB
1 Dustproof Strike	3910	626	TR
2 Door Silencers	1229A	GREY	TR

SET #06

Doors: 138

3 Hinges	FBF179 4 1/2 X 4 1/2	US26D	ST
1 Passage Set	45H-0N14H VT	626	BE
1 Door Closer	CLD-4550 EDA SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
3 Door Silencers	1229A	GREY	TR

SET #07

Doors: 107

3 Hinges	FBF179 4 1/2 X 4 1/2	US26D	ST
1 Passage Set	45H-0N14H VT	626	BE
1 Door Closer	CLD-4550 STD W/PA BRKT SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
3 Door Silencers	1229A	GREY	TR

SET #08

Doors: 106, 124, 125, 132

3 Hinges	FBF191 4 1/2 X 4 1/2	US32D	ST
1 Privacy Set	45H-0LT14H VIB VT	626	BE
1 Door Closer	CLD-4550 STD W/PA BRKT SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
1 Coat Hook	3071	630	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Perimeter Seals	5060 B 1 x 36' 2 x 84"		NA
1 Auto Dr. Bottom-Wood Door	423 N 36"		NA

STATION 4 Hardware Sets

SET #09

Doors: 122, 123, 126, 127, 128, 129, 130, 131, 133

3 Hinges	FBB191 4 1/2 X 4 1/2	US32D	ST
1 Privacy Set	45H-0LT14H VIB VT	626	BE
1 Door Closer	CLD-4550 TCS SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
1 Coat Hook	3071	630	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Perimeter Seals	5060 B 1 x 36' 2 x 84"		NA
1 Acoustic Seal	60FP		NA
1 Auto Dr. Bottom-Wood Door	423 N 36"		NA

SET #10

Doors: 108, 121B, 137

1 Continuous Hinge	HD2400A 83"		NA
1 Exit Device	FL 2114 X 4914D S301 SNB (2)	630	PR
1 Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1 Perimeter Seals	5060 B 1 x 36' 2 x 84"		NA
1 Auto Dr Bottom-Metal Doors	320 S 36"		NA

SET #11

Doors: 136

3 Hinges	FBB191 4 1/2 X 4 1/2	US32D	ST
1 Passage Set	45H-0N14H VT	626	BE
1 Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Auto Dr Bottom-Metal Doors	320 S 36"		NA

SET #12

Doors: 120

1 Continuous Hinge	HD2400A 83"		NA
1 Pull Plate	1018-3	630	TR
1 Push Plate	1001-3	630	TR
1 Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1 Wall Bumper	1270CV	626	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Auto Dr. Bottom-Wood Door	423 N 36"		NA

STATION 4
Hardware Sets

SET #13

Doors: 119

1	Continuous Hinge	HD2400A 83"		NA
1	Pull Plate	1018-3	630	TR
1	Push Plate	1001-3	630	TR
1	Door Closer	CLD-4550 HT SN	689	SD
1	Wall Bumper	1270CV	626	TR
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1	Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1	Auto Dr. Bottom-Wood Door	423 N 36"		NA

SET #14

Doors: 113

2	Continuous Hinge	HD2400A 83"		NA
1	Manual Flushbolt	3917 Mtd. Bottom	626	TR
1	Self-Latching Flushbolt	3820 Mtd Top	626	TR
1	Lockset	45H-7TD14H PATD VT	630	BE
1	Coordinator	3094B2	BLACK	TR
2	Overhead Holder	9014	US32D	AB
2	Door Sweep	C627 A 36"		NA
1	Astragal	139 SP 84"		NA
1	Perimeter Gasket	5075 B 1 x 72" 2 x 84"		NA
1	Threshold	896 S 72"	AL	NA

SET #15

Doors: 115, 116, 117

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	45H-7R14H PATD VT	626	BE
1	Overhead Stop	4424	US26D	AB
1	Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1	Coat Hook	3071	630	TR
3	Door Silencers	1229A	GREY	TR

STATION 4 Hardware Sets

SET #16

Doors: 121A

1	Continuous Hinge	HD2400A 83" EPT-Prep		NA
1	Power Transfer	EPT-12C		PR
1	Exit Device	C MLR TS 2103 CA-03 FSE S301 SNB (2)	630	PR
1	Rim Cylinder	12E-72 PATD	626	BE
1	Door Pull	1191-4J	630	TR
1	Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1	Door Sweep	C627 A 36"		NA
1	Integral Perimeter Seals	By Frame Mfg.		BY
1	Integral Door Bottom	By Door Mfg.		BY
1	Threshold	896 S 36"	AL	NA
1	Wire Harness-Exit Device	WH-6E		ST
1	Wire Harness-Exit Device	WH-26P		ST
1	Wire Harness-Exit Device	WH-192P		ST
1	Power Supply-Exit Device	RPSMLR2BB		PR
1	Power Supply-Card Reader	By Access Control Vendor		BY
1	Door Position Switch	By Access Control Vendor		BY
1	Card Reader	By Access Control Vendor		BY

NOTE: Description of Operation: With a valid card read the electric fail secure exit device unlocks allowing ingress into the building, note free egress at all times. When power is lost to the building the fail secure exit device will remain locked and require a key entry for ingress if required. All trades to collaborate from the General Contractor, Electrical Contractor, Hardware Supplier and Access Control Supplier to install all the necessary hardware to have a successful and operating access control system. All wiring and installation of wiring per Section 260000 and Section 280000.

SET #17

Doors: 102A, 105A

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Power Transfer	EPT-12C		PR
1	Elec. Lock-Fail Safe	45HW-7DEL14H PATD C VT	630	BE
1	Door Closer	CLD-4551 EDA SN	689	SD
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Wall Bumper	1270CV	626	TR
1	Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1	Auto Dr. Bottom-Wood Door	423 N 36"		NA
1	Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1	Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1	Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1	Power Supply-Card Reader	By Access Control Vendor		BY
1	Door Position Switch	By Access Control Vendor		BY
1	Card Reader	By Access Control Vendor		BY

NOTE: Description of Operation: With a valid card read the electric fail safe lock unlocks allowing entry. Lockset to be tied to building fire panel and when notified from fire panel will unlock for free ingress and egress. All wiring and installation of wiring per Section 260000 and Section 280000.

STATION 4 Hardware Sets

SET #18

Doors: 135

3 Hinges	FBB191 4 1/2 X 4 1/2	US32D	ST
1 Power Transfer	EPT-12C		PR
1 Elec. Lock-Fail Safe	45HW-7DEL14H PATD C VT	630	BE
1 Door Closer	CLD-4551 CS P45HD-110 P45HD-112 SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Door Sweep	C627 A 36"		NA
1 Auto Dr Bottom-Metal Doors	320 S 36"		NA
1 Saddle Threshold	425 36"	AL	NA
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Power Supply-Card Reader	By Access Control Vendor		BY
1 Door Position Switch	By Access Control Vendor		BY
1 Card Reader	By Access Control Vendor		BY

NOTE: Description of Operation: With a valid card read the electric fail safe lock unlocks allowing entry. Lockset to be tied to building fire panel and when notified from fire panel will unlock for free ingress and egress. All wiring and installation of wiring per Section 260000 and Section 280000.

SET #19

Doors: 143G

1 Continuous Hinge	HD2400A 83" EPT-Prep		NA
1 Power Transfer	EPT-12C		PR
1 Elec. Lock-Fail Secure	45HW-7DEU14H PATD C VT	630	BE
1 Door Closer	CLD-4550 CS P45HD-110 P45HD-112 SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1 Door Sweep	C627 A 36"		NA
1 Threshold	896 S 36"	AL	NA
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Wire Harness-Elect. Lockset	Wire Harness-Elect. Lockset		ST
1 Power Supply-Card Reader	By Access Control Vendor		BY
1 Door Position Switch	By Access Control Vendor		BY
1 Card Reader	By Access Control Vendor		BY

STATION 4 Hardware Sets

SET #20

Doors: 142

2	Continuous Hinge	HD2400A 83"		NA
1	Lockset	45H-7TD14H PATD VT	630	BE
1	Self-Latching Flushbolt	3820 Mtd Top	626	TR
1	Manual Flushbolt	3917 Mtd. Bottom	626	TR
2	Overhead Holder	9014	US32D	AB
2	Kick Plate	K0050 8" x 35" B4E CSK	630	TR
1	Astragal	139 SP 84"		NA
1	Drip Cap	16 A 76"		NA
2	Door Sweep	C627 A 36"		NA
1	Perimeter Gasket	5075 B 1 x 72" 2 x 84"		NA
1	Threshold	896 S 72"	AL	NA

SET #21

Doors: 141

6	Hinges	FBB199 4 1/2 X 4 1/2	US32D	ST
1	Manual Flushbolt	3917 Mtd. Bottom	626	TR
1	Self-Latching Flushbolt	3820 Mtd Top	626	TR
1	Lockset	45H-7D14H PATD VT	626	BE
1	Coordinator	3094B2	BLACK	TR
2	Overhead Stop	9024	US32D	AB
2	Kick Plate	K0050 8" x 35" B4E CSK	630	TR
2	Door Sweep	C627 A 36"		NA
1	Astragal	139 SP 84"		NA
1	Perimeter Gasket	5075 B 1 x 72" 2 x 84"		NA
1	Saddle Threshold	425	AL	NA

SET #22

Doors: 118

1	Bi-fold Track/Hardware	BFC50-00-36		STAN
4	Back Plate	BP1	630	TR
2	Cabinet Pull	571-6	630	TR

SET #23

Doors: 112

1	Continuous Hinge	HD2400A 83"		NA
1	Lockset	45H-7TD14H PATD VT	630	BE
1	Overhead Holder	9014	US32D	AB
1	Door Sweep	C627 A 36"		NA
1	Perimeter Seals	5075 B 1 x 36" 2 x 84"		NA
1	Threshold	896 S 36"	AL	NA

STATION 4
Hardware Sets**SET #24**

Doors: 140

3 Hinges	FBB191 4 1/2 X 4 1/2	US32D	ST
1 Passage Set	45H-0N14H VT	626	BE
1 Door Closer	CLD-4550 STD W/PA BRKT SN	689	SD
1 Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1 Mop Plate	KM050 6" x 35" B4E CSK	630	TR
1 Wall Bumper	1270CV	626	TR
3 Door Silencers	1229A	GREY	TR

STATION 4
Opening List

<u>Opening</u>	<u>Hdw Set</u>
101	01
101.1	02
102A	17
102B	04
103	05
104	03
105A	17
106	08
107	07
108	10
110	01
112	23
113	14
115	15
116	15
117	15
118	22
119	13
120	12
121A	16
121B	10
122	09
123	09
124	08
125	08
126	09
127	09
128	09
129	09
130	09
131	09
132	08
133	09
135	18
136	11
137	10
138	06
140	24
141	21
142	20
143G	19

END OF SECTION 08 71 00

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and 12-inch- (300-mm-) square Samples.
- B. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201.
- C. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated.
 - 1. GANA Publications: GANA's "Glazing Manual."
 - 2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR-A7, "Sloped Glazing Guidelines."
 - 3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
 - 4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- D. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- E. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

PART 2 - PRODUCTS

2.1 Manufacturer

- A. Oldcastle Building Envelope
- B. Gerkin
- C. Equivalent products of other manufacturers will be considered.

2.2 GLASS PRODUCTS

- A. Float Glass: ASTM C 1036, Type I, Quality-Q3.
- B. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality-Q3.
- C. Reflective-Coated Glass: ASTM C 1376, coated by pyrolytic process.

- D. Tempered Glass: ASTM C 1048, Kind FT (fully tempered), Type II, Class 1 (clear), Form 3; Quality-Q6.
- E. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.

2.3 FABRICATED GLASS PRODUCTS

- A. Sealed Insulating-Glass Units: Preassembled units complying with ASTM E 774 for Class CBA units, with two 5.0-mm thick sheets of glass separated by a 1/2-inch (12.7-mm) dehydrated space filled with argon.

Typical Glazing:

- 1. Inboard Lite: Faces 1 and 2 - Clear
- 2. Outboard Lite: Faces 3 and 4 - Clear
- 3. Low-Emissivity Coating: Face 3.

2.4 INSULATING-GLASS TYPES

- A. Tinted insulating glass; Exterior Storefront systems.
 - 1. Overall Unit Thickness: 1 inch (25 mm).
 - 2. Thickness of Each Glass Lite: 1/4" (6.0 mm).
 - 3. Outdoor Lite: Tinted, fully tempered float glass. Face 1 - clear and Face 2 - PPG Solargray
 - 4. Interspace Content: Argon.
 - 5. Indoor Lite: Fully tempered float glass. Face 3 - PPG Solarban 60 and Face 4 - clear
 - 6. Winter Nighttime U-Factor: 0.29 maximum.
 - 7. Summer Daytime U-Factor: 0.27 maximum.
 - 8. Solar Heat Gain Coefficient: 0.38 maximum.
 - 9. Provide safety glazing labeling.

2.5 GLAZING SEALANTS

- A. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT.
- B. Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are contained in GANA's "Glazing Manual."
- B. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- C. Remove nonpermanent labels, and clean surfaces immediately after installation.

END OF SECTION 08 80 00

SECTION 09 22 16 – NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- B. STC-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing and inspecting agency.
- C. Sizes, widths, and gauges to meet current ASTM standards.

2.2 METAL FRAMING AND SUPPORTS

- A. Steel Framing Members, General: ASTM C 754.
 - 1. Steel Sheet Components: ASTM C 645. Thickness specified is minimum uncoated base-metal thickness.
 - 2. Protective Coating: ASTM A 653/A 653M, G40 (Z120), hot-dip galvanized zinc coating.
- B. Suspended Ceiling and Soffit Framing:
 - 1. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch diameter, or double strand of 0.0475-inch- diameter wire.
 - 2. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, and 0.162-inch diameter.
 - 3. Carrying Channels: Cold-rolled steel, 0.0538 inch thick, 2 inches deep.
 - 4. Furring Channels: Steel studs, 0.0179 inch (0.454 mm) thick, in depth indicated
 - 5. Grid Suspension System for Interior Ceilings: Interlocking, direct-hung system.
- C. Partition and Soffit Framing:
 - 1. Studs and Runners: In depth indicated and a minimum of 0.0179 inch (0.454 mm) thick.
 - 2. Flat Strap and Backing: Minimum of 0.0179 inch (0.454 mm) thick.

3. Rigid Hat-Shaped Furring Channels: In depth indicated and a minimum of 0.0179 inch (0.454 mm)
4. Resilient Furring Channels: 1/2 inch (12.7 mm) deep, with single- or double-leg configuration.
5. Cold-Rolled Furring Channels: 0.0538 inch (1.37 mm) thick, 3/4 inch (19.1 mm) deep.
6. Z-Furring: In depth required by insulation, 1-1/4-inch (31.8-mm) face flange, 7/8-inch (22.2-mm) wall-attachment flange, and 0.0179 inch (0.454 mm) thick.

2.3 ACCESSORIES

- A. General: Comply with referenced installation standards.
 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Acoustical Sealant for Concealed Joints: Nonsag, latex sealant complying with ASTM C 834.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation and with United States Gypsum's "Gypsum Construction Handbook."
 1. Gypsum Plaster Assemblies: Also comply with ASTM C 841.
 2. Portland Cement Plaster Assemblies: Also comply with ASTM C 1063.
 3. Gypsum Veneer Plaster Assemblies: Also comply with ASTM C 844.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Isolate steel framing from building structure, except at floor, to prevent transfer of loading imposed by structural movement.
 1. Where studs are installed directly against exterior walls, install asphalt-felt or foam-gasket isolation strip between studs and wall.
- D. Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.

END OF SECTION 09 22 16

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- B. STC-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing and inspecting agency.

2.2 METAL FRAMING AND SUPPORTS

- A. Suspended and Furred Ceilings: Comply with ASTM C 645 and ASTM C 754.
 - 1. Wire Ties: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.062 inch (1.6 mm) thick.
 - 2. Hangers: Wire, ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.162-inch (4.2-mm) diameter.
 - 3. Carrying Channels: Cold-rolled steel, 2 inches (50.8 mm).
 - 4. Furring Channels: Steel studs or channels, 0.0179-inch- (0.45-mm-) thick in depth indicated.
 - 5. Hot-dip galvanized coating complying with ASTM A 653, G40 (ASTM A 653M, Z90) for framing exterior soffits and suspended ceilings within 10 feet (3 m) of exterior walls.
 - 6. Direct-hung grid suspension system for interior ceilings.
- B. Partitions: Comply with ASTM C 645.
 - 1. Studs and Runners: In depth indicated and 0.0179-inch (0.45-mm) thick, unless otherwise indicated.
 - 2. Rigid Hat-Shaped Furring Channels: In depth indicated and 0.0179-inch (0.45-mm) thick, unless otherwise indicated.
 - 3. Furring Brackets: Adjustable serrated-arm type fabricated from corrosion-resistant steel sheet 0.0329-inch (0.84-mm) thick.
 - 4. Resilient Furring Channels: 1¼-inch deep, with single- or double-leg.
 - 5. Z-Furring: Z-shaped members with face flange of 1-1/4 inch (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), and in depth required by insulation.
 - 6. Hot-dip galvanized coating complying with ASTM A 653, G40 (ASTM A 653M, Z90) for framing members attached to and within 10 feet (3 m) of exterior walls.

2.3 PANEL PRODUCTS

- A. Provide in maximum lengths available to minimize end-to-end butt joints.
- B. Interior Gypsum Board: ASTM C 36/C 36M or ASTM C 1396/C 1396M, in thickness indicated, with manufacturer's standard edges. Regular type unless otherwise indicated, Sag – resistant type for ceiling surfaces. Type X where indicated. Type as required for specific fire-resistance-rated assemblies.
- C. Exterior Gypsum Soffit Board: ASTM C 931/C 931M or ASTM C 1396/C 1396M, in thickness indicated, with manufacturer's standard edges. Regular type unless otherwise indicated.
- D. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M or ASTM C 1396/C 1396M, in thickness indicated. Regular type unless otherwise indicated
- E. Glass-Mat, Water-Resistant Gypsum Backing Board: ASTM C 1178/C 1178M, of thickness indicated.
 - 1. Product: G-P Gypsum; Dens-Shield Tile Guard.
- F. Cementitious Backer Units: ANSI A118.9.

2.4 ACCESSORIES

- A. Trim Accessories: ASTM C 1047, formed from paper-faced galvanized-steel sheet. For exterior trim, use accessories formed from hot-dip galvanized-steel sheet.
 - 1. Provide cornerbead at outside corners unless otherwise indicated.
 - 2. Provide LC-bead (J-bead) at exposed panel edges.
 - 3. Provide control joints where indicated and as required by manufacturer's recommendations. Architect to approve visible locations.
- B. Aluminum Accessories: Extruded-aluminum accessories indicated with manufacturer's standard corrosion-resistant primer
- C. Joint-Treatment Materials: ASTM C 475/C 475M.
 - 1. Joint Tape: Paper unless otherwise recommended by panel manufacturer.
 - 2. Joint Compounds: Drying-type, ready-mixed, all-purpose compounds
 - 3. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish
 - 4. Cementitious Backer Unit Joint-Treatment Materials: Products recommended by cementitious backer unit manufacturer.
- D. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant complying with ASTM C 834.
- E. Sound-Attenuation Blankets: ASTM C 665, Type I (unfaced).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install gypsum board to comply with ASTM C 840.
 - 1. Isolate gypsum board assemblies from abutting structural and masonry work. Provide edge trim and acoustical sealant.
 - 2. Single-Layer Fastening Methods: Fasten gypsum panels to supports with screws.
 - 3. Multilayer Fastening Methods: Fasten base layers and face layer separately to supports with screws
- B. Install cementitious backer units to comply with ANSI A108.11.
- C. Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.
- D. Finishing Gypsum Board: ASTM C 840.
 - 1. At concealed areas, unless a higher level of finish is required for fire-resistance-rated assemblies, provide Level 1 finish: Embed tape at joints.
 - 2. At substrates for tile, provide Level 2 finish: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges.
 - 3. Unless otherwise indicated, provide Level 4 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges.
 - 4. Where existing wall coverings are kept or removed, provide Level 5 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges. Apply skim coat to entire surface.
- E. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.
- F. Cementitious Backer Units: Finish according to manufacturer's written instructions.

END OF SECTION 09 29 00

SECTION 09 50 00 – ACOUSTICAL METAL CEILINGS – APPARATUS BAY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Section Includes

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 metal 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 09 51 23 - Acoustical Ceiling Suspension Assemblies
2. HVAC systems per Mechanical Engineering Drawings
3. Division 26 - Electrical and Electrical Engineering Drawings

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 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
10. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
11. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
12. 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. ESR 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 BioPreferred).

1.4 SYSTEM DESCRIPTION

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. 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 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

a. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.

C. Acoustic 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.

D. 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.

1.7 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.

1.8 PROJECT CONDITIONS

A. Space Enclosure:

Standard Ceilings: Do not install interior ceilings until space is enclosed and weather-proof; 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.

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.

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.

1.9 LEED

A. OMITED

1.10 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 Metal panels: One (1) year from date of substantial completion
2. Grid: Ten (10) 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.

1.11 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 Metal 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. Metal Ceiling Panels:

1. Armstrong World Industries, Inc.

B. Suspension Systems:

1. Armstrong World Industries, Inc.

C. Aluminum Custom Trims:

1. Armstrong World Industries, Inc.

D. Equivalent products of other manufacturers will be considered in accordance with substitution provisions specified in Section 01 60 00 – PRODUCT REQUIREMENTS.

2.2. ACOUSTICAL CEILING UNITS

A. Acoustical Panels Type AMP

1. Acoustical Panels Type AMP-1:

- a. Surface Texture: Smooth
- b. Composition: Metal
- c. Color: White
- d. Size: 12 in x 96 in
- e. Edge Profile: Square with extended flange
- f. Perforation Option: Unperforated
- g. Noise Reduction Coefficient (NRC):
- h. Ceiling Attenuation Class (CAC):
- i. Sabin: N/A
- j. Articulation Class (AC):
- k. Flame Spread: ASTM E 1264; Class A (FM).
- l. Light Reflectance (LR) White Panel: ASTM E 1477; .
- m. Dimensional Stability: Standard
- n. Recycle Content: Post-Consumer - 0% Pre-Consumer - 25%
- o. Acceptable Product: METALWORKS Linear, 5570 No added formaldehyde as manufactured by Armstrong World Industries

2. Metal Panel Accessories:

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, and in compliance with ASTM C 636 and with the authorities having jurisdiction.

C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.

D. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.

E. 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.

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 ceilings panels, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 50 00

SECTION 09 50 00 – ACOUSTICAL METAL CEILINGS – KITCHEN

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Section Includes

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 metal 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 09 51 23 - Acoustical Ceiling Suspension Assemblies
2. HVAC systems per Mechanical Engineering Drawings
3. Division 26 - Electrical and Electrical Engineering Drawings

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 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
10. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
11. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
12. 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. ESR 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 BioPreferred).

1.4 SYSTEM DESCRIPTION

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. 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 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

a. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.

C. Acoustic 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.

D. 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.

1.7 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.

1.8 PROJECT CONDITIONS

A. Space Enclosure:

Standard Ceilings: Do not install interior ceilings until space is enclosed and weather-proof; 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.

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.

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.

1.9 LEED

A. Omitted

1.10 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 Metal panels: One (1) year from date of substantial completion
2. Grid: Ten (10) 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.

1.11 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 Metal Ceiling Units: Furnish quantity 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. Metal Ceiling Panels:

1. Armstrong World Industries, Inc.

B. Suspension Systems:

1. Armstrong World Industries, Inc.

C. Aluminum Custom Trims:

1. Armstrong World Industries, Inc.

D. Equivalent products of other manufacturers will be considered in accordance with substitution provisions specified in Section 01 60 00 – PRODUCT REQUIREMENTS.

2.2 ACOUSTICAL CEILING UNITS

A. Acoustical Panels Type AMP

1. Acoustical Panels Type AMP-1:

- a. Surface Texture: Smooth
- b. Composition: Metal
- c. Color: White
- d. Size: 24 in x 24 in
- e. Edge Profile: Square Tegular 15/16 in for interface with PRELUDE XL 15/16" Exposed Tee grid.
- f. Perforation Option: Unperforated
- g. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton 0.10
- h. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton 36
- i. Sabin: N/A
- j. Articulation Class (AC):

k. Flame Spread: ASTM E 1264; Class A (FM).

l. Light Reflectance (LR) White Panel: ASTM E 1477; 0.61.

m. Dimensional Stability: Standard

n. Recycle Content: Post-Consumer - 0% Pre-Consumer - 25%

o. Acceptable Product: METALWORKS Tegular, 6462M1 No added formaldehyde as manufactured by Armstrong World Industries

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, and in compliance with ASTM C 636 and with the authorities having jurisdiction.

C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.

D. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.

E. 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.

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 ceilings panels, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 50 00 - KITCHEN

SECTION 09 51 13 – AXIOM INDIRECT FIELD LIGHT COVE PERIMETER SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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. Pre-engineered perimeter transition system

B. Related Sections:

1. Section 09 51 23 – Acoustical Ceilings
2. Section 09 29 00 – Gypsum Board
3. HVAC per Mechanical Engineering Drawings
4. Division 26 - Lighting
5. Electrical Items per Electrical Engineering Drawings

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 which 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); 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 C 635 Standard Specifications for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings. 2. ASTM C 636 Recommended Practices for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels. 3. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint 4. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures 5. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components 6. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings

B. American National Standards Institute (ANSI)
Characteristics of Wrought Aluminum Alloys

1. ANSI H35.1 Properties and

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for perimeter components and each type of suspension system required. B. Samples: Minimum 3 inch wide samples of specified component. C. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items that are to be coordinated with, or supported by the ceilings.

1.5 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide perimeter trim components and grid components by a single manufacturer. B. 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.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver perimeter trim components 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 components permit them to reach room temperature and stabilized moisture content. C. Handle components carefully to avoid damage.

1.7 PROJECT CONDITIONS

A. Space Enclosure: Building areas to receive ceilings shall be free of construction dust and debris. Products with 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.

1.8 WARRANTY

A. Perimeter Transition System: Submit a written warranty executed by the manufacturer, agreeing to repair or replace components that fail within the warranty period. Failures include, but are not limited to:

1. Rusting and manufacturer's defects

B. Warranty Period:

1. Perimeter Transition Components: Ten (10) years from date of substantial completion.
2. Armstrong commercial transition components, suspension systems and ceiling products have a thirty (30) year warranty when installed together and used under normal conditions.

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.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Ceiling Panels:

1. Armstrong World Industries, Inc.

B. Suspension Systems:

1. Armstrong World Industries, Inc.

C. Axiom Indirect Field Light Coves

1. Armstrong World Industries, Inc.

D. Drywall Suspension Systems:

1. Armstrong World Industries, Inc.

E. Accessories:

1. Armstrong World Industries, Inc.

F. Lighting Fixture

1. Vode ZipWave, Axis Lighting Cove Perfekt or Litecontrol 17L fixtures.

2.2 ACOUSTICAL CEILING UNITS

A. Acoustical Panels Type ACT (Armstrong Calla Panel Selection):

B. Acoustical Panels Type ACT (Ultima Panel Selection):

1. Surface Texture: Fine
2. Composition: Mineral Fiber
3. Color: White
4. Size: 24'x 24"
5. Edge Profile: Tegular 9/16" for interface
6. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, N/A
7. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, N/A
8. Flame Spread: ASTM E 1264; Class A

9. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.90
10. Dimensional Stability: HumiGuard Plus - Temperature is between 32°F (0° C) and 120°F (49° C). It is not necessary for the area to be enclosed or for HVAC systems to be functioning. All wet work (plastering, concrete, etc) must be complete and dry.
11. Recycle Content: Post-Consumer - 1% - 2% Pre-Consumer Waste - 76%
12. Acceptable Product: Armstrong Ultima, as manufactured by Armstrong World Industries

2.3. ACOUSTICAL SUSPENSIONS SYSTEM

A. Acoustical Suspension System:

I. Armstrong Suprafine Selection

1. Composition: Hot-dipped Galvanized Steel
2. Color: White
3. Profile Height: 1-11/16in
4. Profile: PeakForm with SuperLock™ Main runner clip and XL² Stake-on end detail on Cross-tee
5. Flange" 9/16"
6. Acceptable Product: Suprafine® XL 9/16" Exposed Tee System as manufactured by Armstrong World Industries.

2.4 PERIMETER AXIOM® INDIRECT FIELD LIGHT COVES

A. Product/Manufacturer: Axiom® Indirect Field Light Coves; Armstrong World Industries, Inc.

B. System: An extruded aluminum light cove system fully concealed integrated design to create a light cove profile with integrated Axis Cove Perfekt, Vode ZipWAVE or Litecontrol 17L light fixture, installs with Armstrong acoustical and drywall suspension systems. Commercial quality extruded aluminum alloy 6063 trim channel, factory finished in baked polyester paint (white) color to match intersecting grid system. Commercial quality aluminum unfinished t-bar connection clips; galvanized steel splice plates.

C. Components:

1. Axiom Indirect Field Light Coves: Aluminum extrusions factory attached to formed sheet aluminum with a distinct architectural detail groove for compatible lighting fixtures. Special bosses are designed to connect AXIBC T-bar connector clip and splice plate; to provide positive mechanical lock with no visible fasteners. Factory finished matching approved samples.

2. Axiom Indirect Field Light Cove Straight sections:

A. Axiom Indirect Field Ceiling-to-Ceiling Light Coves

1. AXIFLCCKD – Ceiling-to-Ceiling Knife Edge Drywall

3. Axiom Indirect Field Light Cove Corners, each corner is factory finished and sided to accommodate the straight section of the axiom indirect field light cove.

1. AXIFLCCKDIC – Ceiling-to-Ceiling Knife Edge Drywall Inside Corne

4. Axiom Indirect Light Cove Accessories

A. AXBTSTR – Axiom® Drywall Bottom Trim

B. AXCCLT45 – 45 Degree Tee Bar Connector Twist (for use with Knife Edge® Axiom Trim)

C. AXTBC – T-Bar Connector Clip (for use with Classic Axiom Trim)

D. AX4SPlice – Axiom Splice Plate

2.5 Accessories

1. Armstrong® Ceilings accessories shall be commercial quality hot-dipped galvanized steel

A. Reverse Angle Molding, hemmed with prefinished exposed flanges.

1. Acceptable Manufacturer: Armstrong Item number 7857 as manufactured by Armstrong World Industries.

B. Drywall Angle Clip – Used to create positive and secure angles for drywall grid and ceiling installations on either main beams or cross tees. Attachment to be made with 7/16" pan head screw.

2. Acceptable Manufacturer: Armstrong Item number DW90 as manufactured by Armstrong World Industries.

2.6 DRYWALL SUSPENSIONS SYSTEM

1. Armstrong® Drywall Grid Suspension Systems all main beams and cross tees shall be commercial quality hot-dipped galvanized steel

A. Tee: manufactured main beam- 1-1/2" knurled face with ScrewStop™ reverse hem by 1-11/16 inches high. Drywall Main Beams are factory punched with cross-tee routs and hanger wire holes and SuperLock™ main beam clip for a strong secure connection and fast accurate alignment. Both ShortSpan® Framing System and Drywall Main Beams are Heavy-duty performance per ASTM C635

1. HD8906 - 12ft HD Drywall Main Beam 1-1/2IN

B. Cross Tees: manufactured main beam- 1-1/2" knurled face with ScrewStop™ reverse hem by 1-1/2 inches high with factory punched cross tee routs and hanger wire holes and XL stake on clip for a strong secure connection.

1. XL8965 - 6ft Drywall Cross Tee

C. Wall Molding:

1. KAM12 - 12ft Knurled Angle Molding 1-1/4" Face

D. Hanger wire: a Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least time three times the design load, but not less than 12-gauge.

1. Accessories:

2. DWC - Drywall Clip

2.7 LIGHTING FIXTURE

A. Product/Manufacturer: Axis, Vode or Litecontrol

B. Product Name: Axis Cove Perfekt, Vode ZipWave or Litecontrol 17L

C. Ceiling Grid Compatibility: Armstrong World Industries D. Color: Finished Trim in white

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.

3.2 PREPARATION

A. Coordinate panel layout with mechanical and electrical fixtures.

3.3 INSTALLATION

A. Install suspension system and panels in accordance with manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction

1. Install seismic components if required by the building code. Seismic components to be specified on the architectural plans by the project engineer or design team.

2. Refer to the manufacture's indirect light cove installation instructions as a reference when installing this product.

3.4 ADJUSTING AND CLEANING

A. Clean exposed surfaces of trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13

SECTION 09 51 23 - ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and material Samples.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Seismic Standard: Provide acoustical tile ceilings designed and installed to withstand the effects of earthquake motions according to the following:
 - 1. CISCA's Recommendations for Acoustical Ceilings: Comply with CISCA's "Recommendations for Direct-Hung Acoustical Tile and Lay-in Panel Ceilings - Seismic Zones 0-2."
 - 2. UBC Standard 25-2, "Metal Suspension Systems for Acoustical Tile and for Lay-in Panel Ceilings."

2.2 ACOUSTICAL TILE

- A. Available Products:
 - 1. Basis of Design: Armstrong Ultima
 - 2. Equivalent products of other manufacturers will be considered in accordance with substitution provisions specified in Section 01 60 00 – PRODUCT REQUIREMENTS.
- B. Classification: As follows, per ASTM E 1264:
 - 1. Type and Form: Type IV, Form 2
 - 2. Pattern: E (lightly textured)
 - 3. Color: White
 - 4. Light Reflectance (LR) Coefficient: 0.90
 - 5. Noise Reduction Coefficient (NRC): 0.70
 - 6. Ceiling Attenuation Class (CAC): Not less than 35
- C. Surface-Burning Characteristics: ASTM E 1264, Class A materials, tested per ASTM E 84.
- D. Edge Detail: Beveled Tegalur

- E. Thickness: 3/4 inch (19 mm)
- F. Modular Size: 24 by 24 inches

2.3 SUSPENSION SYSTEM

- A. Ceiling Suspension System: Direct hung ASTM C 635, heavy-duty structural classification.
 - 1. Available Products:
 - a. Basis of Design: Armstrong "Prelude XL Fire Guard 15/16" Exposed Tee or Prelude Plus XL Fire Guard 15/16" Exposed Tee
 - b. Equivalent products of other manufacturers will be considered in accordance with substitution provisions specified in Section 01 60 00 – PRODUCT REQUIREMENTS.
- B. Attachment Devices: Size for 5 times the design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated. Comply with seismic design requirements.
- C. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 1. Size: Provide yield strength at least 3 times the hanger design load (ASTM C 635, Table 1, Direct Hung), but not less than 0.135-inch- (3.5-mm-) diameter wire.
- D. Access: Identify upward access tile with manufacturer's standard unobtrusive markers for each access unit.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Ceiling Suspension System Installation: Comply with ASTM C 636, UBC Standard 25-2 and CISCA's "Ceiling Systems Handbook."
- B. Install acoustical tiles in coordination with suspension system and exposed moldings and trim. Place splines or suspension system flanges into kerfed edges so tile-to-tile joints are closed by double lap of material.
 - 1. Fit adjoining tile to form flush, tight joints. Scribe and cut tile for accurate fit at borders and around penetrations through tile.

END OF SECTION 09 51 23

SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Resilient Wall Base

1.2 SECTION REQUIREMENTS

- A. Submittals: Product Data and Samples for each type of product indicated.
- B. Extra Materials: Deliver to Owner at least 10 linear feet of each type and color of resilient wall base installed.

PART 2 - PRODUCTS

2.1 RESILIENT WALL BASE

- A. Manufacturer
 - 1. Johnsonite, Inc.
 - 2. Equivalent products of other manufacturers will be considered.
- B. Products:
 - 1. See finish schedule
- C. Color and Profile: See finish schedule
- D. ASTM F 1861, Type TP (rubber, thermoplastic)
- E. Height: See finish schedule.
- F. Finish: As selected.

2.2 RESILIENT RUBBER STAIR TREAD WITH INTEGRATED RISER

- A. Manufacturer
 - 1. Johnsonite, Inc
 - 2. Equivalent products of other manufacturers will be considered.

2.3 INSTALLATION ACCESSORIES

- A. Adhesives: Water-resistant type recommended by manufacturer to suit products and substrate conditions.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install in accordance with manufacturers recommendations and instructions
- B. Prepare concrete substrates according to ASTM F 710. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
- C. Adhesively install resilient wall base and accessories.
- D. Install wall base in maximum lengths possible. Apply to walls, columns, pilasters, casework, and other permanent fixtures in rooms or areas where base is required.

END OF SECTION 09 65 13



SECTION 09 65 66 – RESILIENT RUBBER ATHLETIC FLOORING

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Resilient rubber Athletic flooring.

1.2 REFERENCES

- A. ASTM International:
1. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
 2. ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
 3. ASTM E 662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 4. ASTM F 137 - Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical mandrel Apparatus.
 5. ASTM F 386 - Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces.
 6. ASTM F 410 - Standard Test Method for Wear Layer Thickness of Resilient Floor Coverings by Optical Measurement.
 7. ASTM F 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
 8. ASTM F 925 - Standard Test Method for Resistance to Chemicals of Resilient Flooring.
 9. ASTM F 970 - Standard Test Method for Static Load Limit.
 10. ASTM F 1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing.
 11. ASTM F 1700 - Standard Specification for Solid Vinyl Floor Tile.
 12. ASTM F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
 13. ASTM F 2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 and 01 33 00.
- B. Product Data: Submit three copies of 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. Maintenance recommendations
- C. Selection Samples: For each finish product specified, two sets of each type, colors and finish of resilient flooring and accessory required, indicating full range of color and pattern variation as proof of application compliance.

- D. Verification Samples: For each finish product specified, three complete sets of each type, colors and finish of resilient flooring and accessory required, indicating color and pattern of actual product, including variations, as proof of application compliance.
- E. Certification: Upon request by Architect manufacturer to provide third party written test results of physical characteristics and performance attributes performed by an independent laboratory.
- F. Closeout Submittals: Submit two copies of the following:
 - 1. Maintenance and operation data includes - methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
 - 2. Warranty documents specified herein.
- G. Flame Spread Certification: Submit manufacturer's certification that resilient flooring furnished for areas indicated to comply with required flame spread rating has been tested and meets or exceeds indicated or required standard.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications
 - 1. Whenever possible, provide each type of resilient flooring and accessories as provided by a single manufacturer, including recommended primers, adhesives, sealants, finish accessories and leveling compounds.
 - 2. Manufacturer must be an established firm specializing in the production of prefabricated P.V.C. Sport Surfaces with the ISO 9001 rating. All Sports Flooring materials must be manufactured by the manufacturer of the product being submitted. Manufacturer must have completed, and can produce in writing at least 10 projects of similar size and magnitude where this product has been used.
- B. Installer Qualifications:
 - 1. Minimum five years experience and completed at least five (5) projects of similar magnitude, material and complexity.
 - 2. No Installer will be allowed to install specified material if tools are rented or leased from manufacturer or distributor or another outside source.
 - 3. Owner may request to visit installer's office and warehouse facilities.
 - 4. Installer must be a recognized and approved sports flooring contractor by the manufacturer or distributor.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, sheen and finished appearance are approved by Architect.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's original unopened, undamaged packaging until ready for installation in a dry space, with ambient temperatures maintained within range recommended by Johnsonite, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

- B. Store all rolls standing upright; do not lay rolls down for long periods.
- C. Flooring material and adhesive shall be acclimated to the installation area for a minimum of 48 hours prior to installation.

1.6 PROJECT CONDITIONS

- A. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations. Areas to receive flooring shall be clean, fully enclosed, weather tight with the permanent HVAC set at a uniform temperature of at least 68 degrees F (20 degrees C) 72 hours prior to and during and for not less than 48 hours after installation. The flooring material shall be conditioned in the same manner prior to installation. Ambient temperature shall not exceed 85 degrees F (29 degrees C) after installation.
- B. Close spaces to traffic during resilient flooring installation and for a period of time after installation as recommended in writing by the manufacturer.
- C. Install resilient flooring materials and accessories after other finishing operations, including painting, have been completed.
- D. Where demountable partitions and other items are indicated for installation on top of sheet resilient flooring material, install flooring material before these items are to be installed.
- E. All material shall be from the same batch and the rolls shall be installed in consecutive order. If material from more than one batch is to be used, the job shall be laid out so that different batch numbers are not installed side by side.

1.7 EXTRA MATERIALS

- A. Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 closeout submittals requirements.
 - 1. Quantity: Furnish quantity of flooring units equal to 2 percent of amount installed.
 - 2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:

Johnsonite, Inc.
16910 Munn Road Chagrin Falls, Ohio 44023
Telephone: (800) 899-8916, (440) 543-8916; Fax (404) 543-8920
Web: www.tarkettna.com
Email: info@johnsonite.com

- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00

2.2 PROPRIETARY PRODUCT(S)

A. Johnsonite Triumph Resilient Rubber Athletic Tile Flooring with the following physical characteristics:

1. Complies with requirements for ASTM F 1344 Standard Specification for Rubber Floor Tile Class 1-A and 1-B.
2. Tile manufactured of dual durometer layers composed of 100% synthetic and natural rubber.
3. Tile is two-ply vulcanized construction which incorporates a rubber wear layer and an elastic cushioned performance layer.
4. Spike and Skate resistant.
5. Wear layer thickness: .090" (2.3mm).
6. Overall thickness: 3/8" (9.5 mm).
7. Tile design, texture, and color:
 - a) Square Edge (glue down)
 1. Color and Texture TBD
8. Tile size:
 - a. Square Edge (glue down) 24" X 24" (61 cm X 61 cm)
9. ASTM D 2047, Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring of 0.6 or greater.
10. ASTM F 970, Standard Test Method for Static Load Limit – passes 250 PSI.
11. ASTM D 3389 Standard Test Method for Coated Fabrics Abrasion Resistance: < 1.00 gram weight loss.
12. ASTM E 648, Standard Test method for Critical Radiant Flux of 0.45 watts/cm² or greater, Class I.
13. Johnsonite offers a RESTART reclamation program for returning jobsite scrap
14. Resilient Rubber athletic Flooring contains 7% rapidly renewable content
15. 100% Recyclable
16. Phthalate, chlorine and halogen-free
17. LEED contributions for Rubber Athletic Flooring includes MR2; MR4; MR5; and MR6
18. Rubber Athletic Tile Flooring contains 53% pre-consumer recycled content
19. Loose lay designs like Underlock and Interlocking tiles may be used without adhesive- therefore, can be recycled and used again.
20. Johnsonite facilities are ISO 9001 and ISO 14001 Certified.
21. TRIUMPH HAMMERED TEXTURE, GLUE-DOWN Installation
 - a. COLOR: Microtone Tea Leaves

B. Adhesives: As recommended by Johnsonite to meet site conditions.

1. Resilient Rubber Athletic Flooring (For glue down tile only).
 - a) Johnsonite 965 Flooring and Tread Adhesive
 - b) Johnsonite 975 Two-Part Urethane Adhesive
 - c) Johnsonite 140 SpraySmart Adhesive
2. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation.

PART 3 — EXECUTION

3.1 EXAMINATION

- A. Installer to field check and approve of job conditions prior to commencement of installation of SignaFlex. 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.
- C. The installation of the resilient flooring shall not begin until the work of all other trades has been completed, especially overhead trades.
- D. Areas to receive flooring shall be adequately lighted during all phases of the installation process.

3.2 PREPARATION

- A. Prepare substrates according to Johnsonite written instructions to ensure adhesion of Resilient Athletic Flooring.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate paint, coatings and other substances that are incompatible with adhesives or contain soap, wax, oil, solvents, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
 - 3. Mechanically remove contamination on the substrate that may cause damage to the resilient athletic flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.
 - 4. Prepare Substrates according to ASTM F 710 including the following:
 - a. For glue down tile:
 - 1) Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - 2) Perform anhydrous calcium chloride test, ASTM F 1869. Results must not exceed 5 lbs. Moisture Vapor Emission Rate per 1,000 sq. ft. in 24 hours.
 - or –
 - a) Perform relative humidity test using in situ probes, ASTM F 2170. Must not exceed 80%.
 - 3) A pH test for alkalinity must be conducted. Results should range between 7 and 9. If the test results are not within the acceptable range of 7 to 9, the installation must not proceed until the problem has been corrected.
 - 4) Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
 - 5. Wood subfloors must have a minimum 18" (45.7 cm) of cross-ventilated space beneath the bottom of the joist.
 - a. The floor must be rigid, free of movement.
 - b. Single wood and tongue and groove subfloors should be covered with 1/4" (6.4 mm) or 1/2" (12.7 mm) APA approved underlayment plywood.

- 1) Use ¼" (6.4 mm) thick underlayment panels for boards with a face width of 3" (76 mm) or less.
 - 2) Use ½" (12.7 mm) thick underlayment panels for boards with a face width wider than 3" (76 mm).
 - c. Do not install over OSB (Oriented Strand Board), particle board, chipboard, lauan or composite type underlayments.
- B. Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Floor covering shall not be installed over expansion joints.
- D. Do not install resilient products until they are same temperature as the space where they are to be installed.
1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT ATHLETIC FLOORING INSTALLATION

- A. General: Comply with manufacturer's written instructions for installing resilient athletic flooring.
- B. Resilient Athletic Rubber Sheet Flooring:
- 1) Install with Johnsonite adhesive specified for the site conditions and follow adhesive label for proper use.
 - 2) Install rolls in sequential order following roll numbers on the labels.
 - 3) Reverse sheets unless instructed otherwise in Johnsonite Installation Instructions.
 - 4) Roll the flooring in both directions using a 100 pound three-section roller.
- C. Resilient Athletic Rubber Tile Flooring:
- 1) Install with Johnsonite adhesive specified for the site conditions and follow adhesive label for proper use.
 - 2) Do not Quarter Turn tile.
 - 3) Roll the flooring in both directions using a 100 pound three-section roller.
- D. Resilient Athletic Loose Lay UnderLock and Interlocking Tile Flooring:
- 1) Do not adhere Loose Lay tile to substrate.
 - 2) Roll the flooring tabs with a hand roller.

3.4 CLEANING AND PROTECTION

- A. Heat Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
 - 1. No traffic for 24 hours after installation.
 - 2. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
- D. Wait 72 hours after installation before performing initial cleaning
- E. A regular maintenance program must be started after the initial cleaning.

END OF SECTION 09 65 66

SECTION 09 68 13 - TILE CARPETING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Samples. Submit in accordance with Division 01 including physical samples.
- B. Extra Materials: Deliver to Owner carpet tiles equal to 5 percent of each type and color carpet tile installed, packaged with protective covering for storage.

1.2 RELATED WORK

- A. Resilient Wall Base: Section 09 65 13, RESILIENT BASE AND ACCESSORIES.
- B. Testing of Concrete Floors Before Installation: insure compliance with manufacture's recommendations for moisture content and other substrate and environmental characteristics.

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. Products:
 - 1. See finish schedule on drawings.
- B. Primary Backing: Manufacturer's standard material
- C. Secondary Backing: Manufacturer's standard material

Size: See finish schedule on drawings

2.2 ADHESIVE AND CONCRETE PRIMER

Provide water resistant, mildew resistant, nonflammable, and non-staining adhesives and concrete primers for carpet installation. Provide release adhesive for modular tile carpet as recommended by the carpet manufacturer. Provide adhesives flashpoint of minimum 60 degrees C (140 degrees F) in accordance with ASTM D3278.

2.3 SEAMING TAPE:

- A. Provide tape for seams as recommended by the carpet manufacturer for the type of seam used in installation.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install in accordance with manufacturers recommendations and instructions to include preparation and testing surfaces to receive carpet and adhesives.
- B. Comply with CRI 104, Section 13, "Carpet Modules (Tiles)".
- C. Install borders parallel to walls.

END OF SECTION 09 68 13

SECTION 09 99 10 - PAINTING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals:
 - 1. Submit in accordance with Division 01 including physical samples.
 - 2. Product Data
 - 3. Samples on 8x10 or larger sheets.
- B. Mockups: Full-coat finish Sample of each type of coating, color, and substrate, applied where directed in a 4'x4' block. Architect to review once sample is dry.
- C. Extra Materials: Deliver to Owner 1 gal. (3.8 L) of each color and type of finish coat paint used on Project, in containers, properly labeled and sealed.

PART 2 - PRODUCTS

2.1 PAINT

- A. Available Products:
 - 1. Sherwin Williams
- B. Master Painters Institute (MPI) Standards: Provide materials that comply with MPI standards indicated and listed in its "MPI Approved Products List."
- C. Material Compatibility: Provide materials that are compatible with one another and with substrates.
 - 1. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- D. Colors: See Finish Schedule

PART 3 - EXECUTION

3.1 PREPARATION

- A. Comply with recommendations in MPI's "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

- B. Remove hardware, lighting fixtures, and similar items that are not to be painted. Mask items that cannot be removed. Reinstall items in each area after painting is complete.
- C. Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

3.2 APPLICATION

- A. Comply with recommendations in MPI's "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Paint exposed surfaces unless otherwise indicated.
 - 1. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces.
 - 2. Paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint the back side of access panels.
 - 4. Color-code mechanical piping in accessible ceiling spaces.
 - 5. Do not paint prefinished items, items with an integral finish, operating parts, and labels unless otherwise indicated.
- C. Apply paints according to manufacturer's written instructions.
 - 1. Use brushes only for exterior painting and where the use of other applicators is not practical.
 - 2. Use rollers for finish coat on interior walls and ceilings.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
 - 1. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- E. Apply stains and transparent finishes to produce surface films without color irregularity, cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other imperfections. Use multiple coats to produce a smooth surface film of even luster.

3.3 EXTERIOR PAINT APPLICATION SCHEDULE

- A. Steel:
 - 1. Semi gloss Alkyd Enamel: Two coats over rust-inhibitive primer: MPI EXT 5.1D.
- B. Exterior Gypsum Soffit Board:
 - 1. Flat Acrylic Latex: Two coats over primer.
- C. Cement Board Siding:

1. Flat Acrylic Latex: Two coats over factory primer: MPI EXT 3.3A.

D. Plastic Trim:

1. Semi gloss Acrylic Latex: Two coats over (water-based) bonding primer: MPI EXT 6.8A.
2. For 100% PVC trim, follow manufacturers recommendations.

3.4 INTERIOR PAINT APPLICATION SCHEDULE

A. Sealer for Concrete Slab:

1. Per Structural Drawings

B. Steel:

1. Semi gloss Alkyd Enamel: Two coats over alkyd anticorrosive or quick-drying alkyd primer: MPI INT 5.1E.

C. Dressed Lumber: Including architectural woodwork and doors

1. Satin Latex: Two coats over primer: MPI INT 6.3T.

D. Wood Panel-Products:

1. Semi gloss Alkyd Varnish: Two coats over stain and alkyd sanding sealer: MPI INT 6.4D.

E. Gypsum Board:

1. CEILINGS: Flat Acrylic Latex: Two coats over primer/sealer: MPI INT 9.2A.
2. WALLS: Satin Acrylic Latex: Two coats over primer/sealer: MPI INT 9.2A.

END OF SECTION 09 99 10

SECTION 10 28 00 – TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, No. 4 finish (satin), 0.0312-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.
- B. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.
- C. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- D. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.
- E. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

2.2 TOILET AND BATH ACCESSORIES

- A. Manufacturers:
 - 1. See schedules on drawings.
- B. Products:
 - 1. See schedules on drawings

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
 - 1. Install grab bars to withstand a downward load of at least 250 lbf (1112 N), when tested according to method in ASTM F 446.
- B. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items. Remove temporary labels and protective coatings.

END OF SECTION 10 28 00

SECTION 10 44 13 - FIRE EXTINGUISHER CABINETS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Fire-Rated, Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

PART 2 - PRODUCTS

2.1 FIRE-PROTECTION CABINETS

- A. Fire-Protection Cabinets: Stainless steel, semi-recessed for fire extinguisher.
 - 1. Acceptable Products; subject to compliance with specified requirements
 - a. J.L. Industries, Inc., Cosmopolitan
 - b. Larsen Mfg. Co., Architectural Series
 - 2. Equivalent products of other manufacturers will be considered in accordance with provisions specified in Section 01 60 00 – PRODUCT REQUIREMENTS.
- B. Cabinet Construction: Nonrated
 - 1. Fire-Rated Cabinets: Constructed with double walls fabricated from 0.048-inch- (1.21-mm-) thick, steel sheet lined with fire-barrier material.
- C. Cabinet Material: No. 4 Stainless-steel sheet.
 - 1. Trim Style: Flat trim
 - 2. Trim Material: No. 4 Stainless steel
- D. Door Material: No. 4 Stainless steel
 - 1. Door Style: Fully glazed with frame
 - 2. Door Glazing: Tempered float glass
- E. Identification lettering: FIRE EXTINGUISHER decal or vinyl, self-adhering, prespaced lettering in size, color, and vertical or horizontal orientation as selected by Architect.
- F. Hardware: Full length piano hinge, roller catch
- G. Pull: Shall comply with ADA requirements. Provide manufacturer's standard pull handle.

- H. Finishes:
 - 1. Stainless Steel: No. 4

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install cabinets with handle centerline at 48 inches above finished floor.
- B. Fire-Rated Hose or Valve Cabinets: Install cabinet with not more than 1/16-inch (1.6-mm) tolerance between pipe OD and knockout OD. Seal through penetrations with firestopping sealant.

END OF SECTION 10 44 13

SECTION 10 44 16 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHERS AND BRACKETS

- A. Portable Fire Extinguishers: NFPA 10, listed and labeled for the type, rating, and classification of extinguisher.
 - 1. Acceptable Manufacturers:
 - a. Larsens Manufacturing Company
 - b. J.L. Industries.
 - c. Potter-Roemer, Inc.
 - 2. Equivalent products of other manufacturers will be considered in accordance with provisions specified in Section 01 60 00 – PRODUCT REQUIREMENTS.
 - 3. Multipurpose Dry-Chemical Type: UL-rated 4-A: 60-B: C, 10-lb nominal capacity, in enameled-steel container.
- B. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for fire extinguishers indicated, with plated or baked-enamel finish.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install fire extinguishers in mounting brackets and cabinets where indicated.

END OF SECTION 10 44 16

service dependability
 excellence quality
 integrity

Emergency Response Lockers modular design



PART 1- GENERAL

1.1 RELATED DOCUMENTS:

We suggest use of your standard office reference to drawing, general and special conditions, etc.

1.2 SCOPE:

Furnish and install new steel lockers, accessories and finish metal trim as shown or indicated on approved drawings. Concrete or masonry bases, wood furring, blocking or trim as may be required by drawings are included in other sections of this specification.

1.2.1 SUBMITTALS:

Shop Drawings: Submit drawings showing locker types, sizes and quantities, including all necessary details relating to anchoring, trim installation and relationship to adjacent surfaces.

Numbering: The locker numbering sequence shall be provided by the approving authority and noted on approved drawings returned to the locker contractor.

Color Charts: Provide color charts showing manufacturer's available colors. Request samples of paint on metal if required by normal office procedures or in the event of non-standard color selection.

Lock Combination Listings and Master Keys: Use only when combination locks are specified. Delivered directly to the owner's representative.

1.3 QUALITY ASSURANCE:

1.3.1 UNIFORMITY: Provide each type of metal locker as produced by a single manufacturer, including necessary accessories, fittings and fasteners.

1.3.2 JOB CONDITIONS: Do not deliver metal lockers until building is enclosed and ready for locker installation. Protect from damage during delivery, handling, storage and installation.

PART 2- PRODUCTS

2.1 MANUFACTURER:

Republic Storage Systems LLC. Products by other manufacturers may be approved provided they meet the detailed specifications written below. Approval procedure to be as specified in the General Conditions of these locker specifications.

2.2 LOCKERS:

Type: Emergency Response

Size: Width: 24, 30, 36

Depth: 24

Height: 72

Color:

No. of Locker Frames:

2.3 FABRICATION - GENERAL

2.3.1 MATERIAL: All major steel parts shall be made of mild cold rolled steel, free from imperfections and capable of taking a high grade baked enamel or powder coat finish.

-ALTERNATE: Specified locker components shall be manufactured from Galvannealed steel and finished by manufacturer's standard process.

2.3.2 FINISH: Surfaces of the steel to be thoroughly cleaned, phosphatized and prepared for baked enamel or powder coat finish in accordance with paint manufacturer's instructions

2.3.3 CONSTRUCTION: Lockers shall be built on the unit principle, each locker shall have an individual door and frame, an individual top, bottom, back, shelves and uprights. Assembly of all locker components shall be by riveting with a backup washer to provide shake-proof permanent fastening while still permitting fastener removal by drilling to allow future rearrangement of lockers or replacement of damaged parts.

-ALTERNATE 1: Keps nuts and bolts may be used for assembly.

-ALTERNATE 2: Lockers shall be pre-assembled of welded construction conforming with job requirements. All welds shall be smooth and without burrs. No nuts, bolts, or rivets shall be allowed in assembly of main locker groups. Optional Locked Compartment, Foot Locker, Vertical Partition, Half Shelves, and/or Drawer are not welded into assembly.

2.3.4 DOOR FRAMES: Door frames shall be 16 gauge formed into 1" wide face channel shapes with a continuous vertical door strike, integral with the frame on both sides of the door opening. Top and bottom cross frame members of 16 gauge channel shapes shall be securely welded to vertical framing members to ensure a square and rigid assembly. A doorstep shall be provided at the top and bottom frame to prevent doors from swinging past the face of the frames.

2.3.5 DOORS: Each Locker shall have double door configuration with left and right hand doors each formed from one piece 14 gauge cold rolled sheet steel. Both doors shall have channel formation on the hinge side and right angle formations across the top and bottom. The latch side of left door shall have 3 frame hooks for engagement of lock bar as well as two spring-loaded cams that engage and disengage into top and bottom frames when the right door is opened and closed. There shall also be a full height flange to serve as door strike for right door. The left side of right door shall have channel formations of adequate depth to fully conceal the lock bar. Doors shall have diamond shaped perforations 3/4" wide by 1-1/2" high to provide free airflow while leaving sufficient metal for rigidity and strength.

ERL - Popular Configurations:

Many configurations can be built from Emergency Response Locker parts. A sampling of configurations is shown here.

Available Sizes:
 W - 24", 30", 36"
 D - 24"
 H - 72"



24" Wide
 • 12" Upper Cmpmt
 • Seat Shelf
 • Drawer



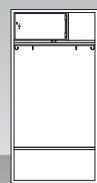
24" Wide
 • 24" Upper Cmpmt
 • Seat Shelf
 • Drawer



24" Wide
 • 12" Upper cmpt
 • Half Shelves
 • Partition
 • Drawer



24" Wide
 • Partition
 • Half Shelves



36" Wide
 • 24" Upper Cmpmt
 • Seat Shelf



36" Wide
 • 24" Upper Cmpmt
 • Partition
 • Drawer



-ALTERNATE: Lockers shall be provided as open front frames without full height doors.

2.3.6 DOOR REINFORCEMENT: Each door shall be reinforced with a 16 gauge by 7/8" wide hat shaped channel welded to inside face of door. Reinforcement shall be located in solid area on each door between diamond perforations.

2.3.7 PRE-LOCKING DEVICE: Except for turn handle configuration, Lockers shall be equipped with a positive automatic pre-locking device whereby the locker may be locked while door is open and then closed without unlocking and without damaging locking mechanism.

2.3.8 LATCHING: Latching shall be a one-piece, pre-lubricated spring steel latch, completely contained within the lock bar under tension to provide rattle-free operation. The lock bar shall be of pre-coated, double-channel steel construction. The lock bar shall be securely contained in the door channel by self-lubricating polyethylene guides that isolate the lock bar from metal-to-metal contact with the door. There shall be three latching points of the right door to left door. The lock bar travel is limited by contacting resilient high-quality elastomeric cushioning devices concealed inside the lock bar. Frame hooks to accept latching shall be of heavy gauge steel, set close in and welded to the door. Continuous vertical door strike shall protect frame hooks from door slam damage. A soft rubber silencer shall be securely installed on each frame hook to absorb the impact caused by closing of the door. A Latch Guard steel plate shall be welded on each frame hook.

- ALTERNATE: Turn Handle: Lockers can also be equipped with a three point latching turn handle that provides latching rod engagement at the top and bottom cross frames and a 1" wide center latch engaging the vertical locker jamb.

2.3.9 HANDLES: A non-protruding 14 gauge lifting trigger and slide plate shall transfer the lifting force for actuating the lock bar when opening the door. The exposed portion of the lifting trigger shall be encased in a molded ABS thermoplastic cover that provides isolation from metal-to-metal contact and be contained in a formed 20 gauge stainless steel pocket. This stainless steel pocket shall contain a recessed area for the various lock types available and a mounting area for the number plate.

-ALTERNATE: Turn Handle: Tiered athletic lockers can also be equipped with an externally mounted turn handle compatible with both padlocks and built-in dead bolt locks.

2.3.10 HINGES: Hinges to be 2" high, 5-knuckle, full loop, tight pin style, securely welded to frame and riveted to the inside of the door flange. Hinges are attached with two rivets. Each door shall have three hinges.

2.3.11 BODY: Locker body components shall be made of cold rolled steel specially formed for added strength and rigidity and to ensure tight joints at fastening points. 16 gauge side uprights are perforated with diamond shaped openings 3/4" wide by 1 1/2" high for maximum ventilation. Diamond pattern shall be located between the lower shelf and the clothes hooks. Solid steel sections shall occur at the locked compartment above the upper shelf and below the lower shelf or hinged seat to provide closed compartments. Locker backs shall be 18 gauge steel with right angle flanges on each vertical side for stiffness, ease of assembly and corner rigidity (16 gauge backs with optional welded construction). Tops, bottoms, shelves

and compartment dividers shall be 16 gauge steel, fully flanged on all sides for added stiffness. Shelves shall have an additional return flange on the front edge creating a channel shape to make the impact surface rigid. Locker bottom will have an integral door strike and rubber silencer to provide both a kick-resistant door stop and a smooth surface for loading equipment. Locker bottom shall be reinforced underneath with a 16 gauge 1 1/2" tall channel. All locker components are finished in the same color.

2.3.12 INTERIOR EQUIPMENT: Lockers shall be equipped with one full width shelf located a nominal 12 3/4" down from the top of the locker and having a 13 3/4" nominal depth. The locker openings shall be equipped with four single-prong clothes hooks, one mounted on each side and two mounted on the locker back. In addition, a coat rod shall be provided for the full width of the locker.

-ALTERNATE: Optional Drawer: The bottom portion of the locker shall have a full width, enclosed drawer. The drawer shall be fabricated and welded into a square and rigid assembly composed of 16 and 18 gauge panels. Drawer shall be mounted on ball-bearing drawer slides rated at 200 pound capacity. Drawer slides to be three piece full-extension slide with rubber cushioned stop for quiet operation and no less than 54 ball bearings per slide to ensure smooth and long-lasting operation. The top of the drawer case shall be a 16 gauge shelf with a 16 gauge channel reinforcement that will allow it to be used as a seat. The top of this seat shall be up 15" from the bottom of the locker. The front of the drawer shall be formed into an integral handle pull. Brackets and holes shall be provided to use either a built-in keyed cylinder cam lock or a padlock. There shall also be provision for adding optional dividers to partition the space within the drawer.

-ALTERNATE: Optional Locked Compartment: Shall consist of a 16 gauge vertical partition extending from the 13 3/4" deep, full width shelf to the locker top, forming a security box on the left side of the shelf. Channel-shaped, 16 gauge framing members complete the door opening. The locked compartment door shall be 14 gauge steel with right angle flanges on all four sides. The door latch shall be a protruding padlock hasp and a stainless steel strike plate with an integral handle. The door shall be punched to accept built-in combination or key locks. The door shall also be equipped with two spring-loaded hinges to hold it closed for safety purposes. Locked compartment available as 12" or 24" wide.

-ALTERNATE: Optional Foot Locker: The bottom portion of the locker shall have a full width, enclosed foot locker with a hinged lid that also serves as a built-in seat. This option is only available for lockers without full-height doors. The front panel of the foot locker shall be 14 gauge steel with right angle flanges on the two sides and bottom which attach the panel to the locker frame. The front panel shall also have a channel shaped top flange which supports the hinged seat/lid. The face of the front panel to be fully punched with mini-louvers on either side of a recessed opening that accepts a padlock hasp mounted on the hinged seat/lid. The recessed opening shall contain a stainless steel strike plate and have a tapered bottom flange for number plate mounting. The hinged seat/lid shall be 14 gauge steel with right angle flanges on the

sides and rear, and channel-shaped flanges across the front. The seat front shall be further reinforced with a 16 gauge box formation running side to side on which are mounted four rubber bumpers that bear on the top channel of the front panel. An additional 16 gauge reinforcing angle shall be welded to the underside of the lid midway between the front box formation and the rear flange. The seat/lid shall have a full width, continuous hinge riveted to the rear flange and welded to a 16 gauge channel-shaped hinge post attached to the locker back and sides. Two channel-shaped side fillers shall be mounted to the locker sides to provide supporting flanges along the sides of the seat/lid.

-ALTERNATE: Optional Vertical Partition and Half Shelves: A 16 gauge vertical partition shall be provided to divide the interior space. It shall be located in the center of the locker running from under the upper shelf to either the bottom of the locker or down to the top of the lower shelf. This partition shall be flanged and fastened at the top and bottom, and a full height double bend at the front shall ensure both rigidity and safety. Optional half width shelves can be spaced approximately 11" apart, on either side of the partition, to provide additional divisions of space. When using the partition and half shelves, the coat rod is only half the width of the locker.

2.3.13 NUMBER PLATES: Each locker shall have a polished aluminum number plate with black numerals not less than 1/2" high. Plates may be riveted to the shelf face with two rivets and on the full height locker door, if provided.

2.3.14 COLOR: : Doors, frames and all body parts shall be finished in colors selected from Republic's collection of twenty-five baked enamel colors.

-ALTERNATE: Doors, frames and all body parts shall be finished in colors selected from Republic's collection of nine powder coat colors.

-ALTERNATE: Specifier may modify above paragraph if non-standard custom colors are selected.

PART 3 - EXECUTION

3.1 INSTALLATION:

Lockers must be installed in accordance with manufacturer's approved drawings and assembly instructions. Installation to be level and plumb with flush surfaces and rigid attachment to anchoring surfaces.

Space fasteners at 36" O.C. or less as recommended by manufacturer. Use fasteners appropriate to load and anchoring substratum. Use reinforcing plates wherever fasteners could distort metal.

Various trim accessories where shown such as sloping tops, fillers, bases, recess trim, etc., shall be installed using concealed fasteners. Flush, hairline joints are provided at all abutting trim parts and at adjoining surfaces.

3.2 ADJUSTMENT:

Upon completion of installation, inspect lockers and adjust as necessary for proper door and locking mechanism operation.

3.3 QUALITY ASSURANCE:

Republic reserves the right to modify the design and/or change specifications or colors/finish consistent with our policy of product excellence.

Note: For user safety all Republic lockers must be secured to the wall and/or floor prior to use.



3M™ Scott™ HushAir Connect 7500

The system shall be designed to tie into the air storage/charge station module. This document describes the minimum requirements for a complete Breathing Air System. The system shall be modular and capable of being supplied as one (COMPLETELY INTEGRATED) or for versatility; two or three modules as specified herein. The ability to separate the compressor module from the charge station is for operator safety and noise reduction.

Warranty

The equipment supplied shall be guaranteed to be new, of current design, and free of all defects in material and workmanship for a period of three years, based on prescribed service and maintenance.

Air Compressor Assembly

The assembly shall incorporate four stages. It shall be a reciprocating air-cooled compressor with relief valves and heat exchanger after each stage of compression. The compressor shall be a combination of, double-acting and single acting cylinder/piston design with three connecting rods. The cooling air shall be supplied from a fan assembly mounted on the flywheel that delivers not less than 6000 cubic feet of cooling air per minute. Lubrication shall be accomplished by means of a differential pressure/controlled splash system. External pressure, (force-feed) oil pump providing oil spray into the fourth stage for lubrication is not acceptable.

Performance Specification (15hp)

31.7 Piston Displacement SCFM
 17.8 ACFM @ 6000 PSI (FAD)
 21.5 SCFM Charging Rate (Formula from 0 PSI to 6000 PSI)
 25.5 SCFM Charging Rate (Formula from 500 PSI to 3000 PSI)
 6000 PSI Maximum Duty
 15HP Electric Motor -208/230/460 volts 3 phase
 880 RPS Maximum Compressor Speed

Performance Specification (20hp)

35.8 Piston Displacement SCFM
 20.5 ACFM @ 6000 PSI
 25.5 SCFM Charging Rate (Formula from 0 PSI to 6000 PSI)
 29.5 SCFM Charging Rate (Formula from 500 PSI to 3000 PSI)
 6000 PSI Minimum Continuous Duty
 20 H.P. Electric Motor- 208/230/460 volts 3 phase
 930 RPM Compressor Speed Maximum

Compressor Features

Frame – The 100% cast iron designed to support the overhung crankshaft. Cylinders bolt directly to the cast iron frame. Frame is completely sealed yet allows for maximum accessibility. Crankshaft – A unique overhung design supported by two heavy duty ball bearings with replaceable crank-pin bearing. Entire shaft is balanced with an integral counterweight to insure smooth trouble free operation.

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- *Crankshaft* - A unique overhung design supported by two heavy duty ball bearings with replaceable crank-pin bearing. Entire shaft is balanced with an integral counterweight to insure smooth trouble free operation.
- *Connecting Rods* – Crank pin bearing inside the rod is precision ground requiring no alignment.
- *Cylinders* – These are 100% cast iron, separately cast and individually bolted to the frame. The cylinders are precision honed for low oil carryover. Radial fins on the cylinders help remove heat and ensure 360 degree cooling of the cylinders.
- *Pistons* – The first and second stages utilize a step type double acting piston, while the third stage utilizes a stepple type piston. The fourth stage uses a built-up, stepple type piston.
- *Rings* – The first stage utilizes five compression rings and one oil control ring. The second stage utilizes three compression rings and one oil control ring. The third stage uses four compression rings and one oil scrapper ring. The fourth (final stage) using five compression rings and one oil scrapper ring.

- *Flywheel* – The cast iron fan type flywheel with attached fan forces a “cyclone” air blast the deep finned cylinders, multi- finned intercooler, and finned tube aftercooler. The flywheel is balanced for vibration free operation. The fan is bolted to the flywheel and is available in several sizes to match ambient conditions.
- *Intercoolers* – The intercoolers between stages are of finned tube construction, to provide maximum cooling area. They are located directly in the flywheel air blast, to remove the heat of compression between stages, keeping running temperatures and power loads to a minimum. The inter-coolers are provided with a relief valve to prevent over- pressurization.
- *Intercooler Pressure Gauge* – Pressure gauges are provided to display reading pressure in the intercooler(s). Abnormal pressures indicate when valve maintenance is required, eliminating costly tear down inspections.
- *Lubrication* – Splash lubrication of running parts is simple and reliable. Lubrication dippers are integral with connecting rods and cannot come loose.
- *Inlet Filter* – The filter has a durable carbon steel canister with baked enamel finish. A treated paper dry type) 10- micron inlet filter/silencer is standard.
- *Valves* – The first and second stage shall have concentric ring valves that allow balanced and efficient inlet and discharge airflow. The third and fourth stages shall have concentric ring and plate valves that are of the cartridge type for ease of maintenance. All valves shall be made of premium grade stainless steel. Valve components are easily removable for inspection and maintenance.
- *Unloader* – The unloader automatically bleeds the air from intercoolers and cylinders, providing a loadless start. This protects the motor from overload.
- *Burst Disc Discharge Relief Valve* – The burst disc discharge relief valve, protects the system from any sudden, abnormal pressure surge. A conventional relief valve may not relieve have the capability to “relieve” quickly enough.
- *Low Oil Level Switch* – Low oil level switch prevents the unit from operating when oil is low. Air-cooled Aftercooler – Air-cooled aftercooler lowers discharge air temperature to within 15 degrees F. of ambient temperature.
- *Separator/Drain Traps* – A drain trap is supplied between the second and third stage, third and fourth stage, and at the discharge of the compressor. The accumulated water and oil vapor is automatically removed.
- *Automatic Condensate Drain System* – An automatic condensate drain system automatically drains the condensate traps during operation and when the compressor stops.
- Compressor shall have piston rings on all pistons. The third and fourth stage pistons shall be connected to the guide piston by a concentric retainer, such that the compression piston is free of thrust loading, and always is in contact with the guide/drive piston to prevent damage caused by a free floating piston.
- Stainless steel, disc-in plate valves for longer wear.

Purification System (65AL3 for 15hp) (65AL4 for 20hp)

- The purification system shall consist of a mechanical oil/moisture separator and chemical purification chambers. The chambers shall be designed to conform to the ASME code for Unfired Pressure Vessels.
- Purification chambers shall be constructed in aluminum alloy 6061-T6 as its anti-corrosive properties exceed all other chamber materials.
- Purification system shall process a minimum of 60,000 SCF (15hp) or 84,000 SCF (20hp) of air per cartridge set. Purified air shall be measured by the actual weight of Molecular Sieve.
- Electronic dew point (DP) detection shall not be used as a means to claim extended chemical cartridge life.
- CO and dew point sensors shall not be installed in the purification chamber. Sensors shall be installed downstream of all chambers so the sampled air is representative of that delivered to the B.A. cylinders.

The purification system shall have the following minimum ratings:

- 6000 PSI working pressure.
- 4 to 1 safety factor.
- 5 to 80 SCF minimum flow capacity.
- 60,000 (15hp) or 84,000 SCF (20hp) standard cubic feet of air purified per chemical cartridge set.

Computerized Control and Monitoring System X4 Controller

All significant functions of the system shall be monitored and controlled by a controller. The operational status will be presented on an annunciator panel. In the event of an out-of-tolerance condition, the controller will alarm and stop the compressor. The status and/or cause will be indicated on the annunciator panel. All accumulated times on all significant time sensitive functions will be recorded and displayed on command. The system shall have the following as a minimum:

Functions / Parameters Monitored and Controlled

Compressor Assembly

Compressor start/stop (stop - advise normal and alarm abnormal condition)
 Discharge air pressure (stop - advise normal condition)
 Auto condensate drain control (cycle drain function, advise normal condition)
 Purge control (on shutdown, advise normal condition)
 Oil level and/or pressure (stop, alarm and advise abnormal condition)

Purification System

Dew point monitoring/control (stop, alarm and advise abnormal condition)
Carbon monoxide monitoring/control (stop, alarm and advise abnormal condition)
Auto condensate drain control (advise status-normal condition)
“Purge” control (advise status-normal condition)

ACD / COOL DOWN Feature - The system shall have the capability of dumping all mechanical moisture traps every fifteen (15) minutes during compressor operation. Prior to shutdown, manually or automatically, it shall open and unload all moisture drain valves. It shall run for two to five minutes in order to purge the system of all accumulated water and oil vapor. Breathing Air Compressor Systems that operate without a “Cool Down Cycle” will have corrosion build up on the cylinder walls and piston rings, creating high maintenance and shorter life to the compressor.

Housekeeping

Total time on compressor assembly (advise time on command)
Time since compressor service (re-settable, advise time on command)
Time since purification cartridge change (re-settable, advise time on command)
Time on DP monitor cell (re-settable, advise time on command)
Time on CO monitor cell (re-settable, advise time on command)
Automatic calibration of DP and CO monitors (advise procedure on command)

Alarms (AUDIO/VISUAL)

High discharge air temperature - with automatic compressor “STOP”, “OVERRIDEABLE” with a “MAXIMUM” upper limit, not “OVERRIDEABLE”. The upper limit is factory set.
High discharge air carbon monoxide - with automatic compressor “STOP”, “OVERRIDEABLE” with a “MAXIMUM” upper limit of 30 PPM not “OVERRIDEABLE”. Used in an emergency to SAVE A LIFE.
High discharge air moisture (dew point) - with a “WARN” to advise a pending filter (purification cartridge) change; an “ALARM” with automatic compressor “STOP”, “OVERRIDEABLE” with a “MAX” upper limit factory set at a safe condition. “OVERRIDE” used in an emergency to SAVE A LIFE.
Low oil level and/or pressure - with automatic compressor “STOP” - not “OVERRIDEABLE”.

Special Feature and Controls

Prolonged run time control. Will stop the compressor assembly when pre-determined continuous run time has been exceeded. An audio/visual alarm and word advice is presented on the abnormal condition. “RESET” is required Time limit for “OVERRIDE” operation. Prevents a potential unsafe condition if a system were left in “OVERRIDE” operation. A maximum run time is factory set, preventing prolong operation at a marginal condition. An audio/visual alarm and word advice is presented of the abnormal condition.
Time delay for false alarm recognition. Pre-programmed to prevent false alarms from stopping the compressor or initial system setup and on purifier cartridge change.
“Emergency Stop” control mounted on the main control panel.

Display

Final Pressure “Storage Full” (up to 6000 PSI)
Discharge Air Temp. Up to 800F
Oil Level/Pressure “GO-NO-GO” alarm
Dew Point Level Up to 30 °F, down to minus 100 °F
Carbon Monoxide Level 0 to 200 PPM
Timing Functions Hours & Minutes

Demand Control

The compressor will automatically respond to air “demand”, keeping the air receivers about 6000 PSI.

Delivery, Installation and Training

The complete system shall be assembled and tested as a complete system at the factory prior to shipment.

The system shall be set up, installed, and checked out at the user’s destination by the distributor. The user shall receive training on the operation and maintenance of the system as required by NFPA.



3M Scott Fire & Safety
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SECTION 11 23 00

COMMERCIAL LAUNDRY EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Commercial Laundry Equipment of the Following Types:
 - 1. Washer - extractors.

1.2 RELATED SECTIONS

- A. Civil Engineering Drawings - Facility Storm Drainage Piping.
- B. Civil Engineering Drawings - Sanitary Waste Separators.
- C. Plumbing Drawings - Facility Natural-Gas Piping.
- D. Plumbing Drawings - Domestic Water Softeners.
- E. Mechanical Drawings - HVAC Air Distribution.
- F. Electrical Drawings - Common Work Results for Electrical.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- 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 drawings depicting the plan and elevation views of each model specified, with notations for supply and waste line connections, chemical connections, steam supply, electrical connections, handling and any other pertinent placement information. Coordinate with locations found on the Contract Drawings.
- D. Verification Samples: For each finish product specified, two samples that depict the actual product, color, and pattern.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section shall be supplied by a single manufacturer with a minimum of ten years experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.

C. Certifications:

1. Washer-Extractors: Listed with CSA, ETL, ISO 9001 and 14001 Quality and Environmental Impact Standards.
2. Top load Washers: UL, CSA Listed
3. Dryers: UL, CSA Listed.
4. Ironers: Listed with CSA or ETL, ISO 9001 and 14001 Quality and Environmental Impact Standards.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation. Handle in accordance with manufacturer's recommendations.

1.6 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.

1.7 WARRANTY

- A. Warranty: At project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.
1. Washer-Extractors
 - a. Parts: Three (3) years on all machine parts from date of installation or three and one half (3 1/2) years from date of manufacture; which-ever comes first.
 - b. Washer Mainframe, inner cylinder, including shaft and coupler, bearings and seals: Five (5) years from the date of installation or five and one half (5 1/2) years from the date of manufacture; which-ever comes first.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Continental Girbau, Inc., which is located at: 2500 State Rd. 44; Oshkosh, WI 54904; Toll Free Tel: 800-256-1073; Tel: 920-231-8222 ; Fax: 920-231-4666 ; Email:[request info \(talbright@cgilaundry.com\)](mailto:request info (talbright@cgilaundry.com)); Web:www.cgilaundry.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 E-SERIES WASHER - EXTRACTORS

- A. E-Series Washer-Extractor General Characteristics:
1. Cylinder (inner/outer) module front face material: AISI Type 304. Cabinet (Top/Lower Front/ Pillars/Sides) material: Titan steel finish.
 2. Noise and In-Line Filters:
 - a. No more than 70 dB (Measured Equivalent Continuous) at the workstation of the unit.
 - b. Standard in-line circuit filters that reduce induced noise and radiating noise for output wiring.
 - c. Standard in-line DC reactor for improving the input power-factor and reducing harmonics when the voltage imbalance exceeds 2 percent.
 3. Wash Wheel and Lifters:

- a. Wash wheel polished to a clean finish and free of bolts and visible welds.
 - b. Funneled tub perforations in order to protect wash items damage caused from sharp edges.
 - c. Tub lifter with top and side perforations that lift and drop water and wash items together providing superior load saturation, chemical penetration and improved rinsing.
 4. Bearing Housing/Protection: Solid one (1) piece construction for optimum structural support and must have an in-line bearing protection weep system allowing any moisture that may breach the seal to be drained away before reaching the main bearing.
 5. Suspension System: Unit equipped with an internal suspension system capable of absorbing up to 95 percent of transmitted load dynamic energy (vibration) and isolating it away from electrical components, major mechanical components (bearings, shaft, frame) and the floor. Unit shall be freestanding and not require bolt down or pin attachment to floor structure and should require no additional foundation from standard commercial concrete for mounting.
- B. E-Series Washer-Extractor - Intelli Control General Characteristics:
 1. Wash / Extraction Speeds: Programmability of at least four (4) wash rotation speeds and at least six (6) levels of extract by phase. High extract is a minimum of 351 G-Force.
 2. Cycle Selection: At least 20 preprogrammed laundry cycles and 79 fully programmable cycles. The programmable cycles shall allow flexibility of as few as one (1) Phase / bath or as many as 21 phase / bath exchanges to ensure proper load processing and flexibility.
 3. Programmable Controls:
 - a. 79 fully programmable cycles with the ability to program manually at the machine or via a card download interface for maximum speed and accuracy for multiple machines or locations.
 - b. Up to 21 phases or bath exchanges. A phase (bath) consists of no less than six (6) programmable fill levels, adjustable fill temperatures, programmable thermostatic cool down, automatic chemical dispensing and or injection and the ability to select at least five (5) on/off rotation combinations of speed and duration for wash, variable wash time and 6 variable extract speeds for all programmed phases.
 - c. Display cycle progress through LED indicator using words and icons located on control panel and shall allow management to limit operator programming through the use of a secret access code and cycle lockout function.
 4. Water Temperature Control: Thermostatically controlled water inlet valve. Operator may pre-set all phase bath temperatures from 32 degrees F to 194 degrees F (0 - 90 degrees C) to adapt to specific linen treatment specifications and/or government sanitary regulations.
 5. Progressive Cool Down: Capable of a gradual reduction of water temperature from wash to rinse so to reduce fabric shock/wrinkles. Allows at least four (4) programmable levels of gradient reduction per minute including: 2, 5.5, 9 and 18 degrees F.
 6. Automatic Chemical Injection Chemical Dispenser: Unit shall provide eight (8) independent chemical injection connections for automatic dispensing of liquid chemicals with a minimum of four (4) independent activation signals with an option for twelve (12), EH030, EH040 models and twelve (12) independent activation signals standard for the EH090, EH130, EH255 models. For safety purposes all connection ports shall be mounted on the rear of the machine. Unit shall be equipped with a top mounted four (4)-compartment pre-wash and wash detergent/ bleach/softener dispenser. The chemistry from liquid supply or hopper compartments must be able to be dispensed automatically at the appropriate time of the cycle only after being diluted

with water. The control shall allow for the hopper and liquid injection signals to be controlled independently and allow for signal duration/flush programming. The chemical water solution shall be delivered to the load below water level to protect the load from possible chemical damage.

- C. Model: EH255 Stationary as manufactured by Continental Girbau, Inc.
1. Capacity:
 - a. Weight: 255 lbs (110 kg).
 - b. Volume: 38.8 cu ft (1100 cu dm).
 2. Size / Dimensions:
 - a. Cylinder Diameter: 51.6 inches (1310 mm).
 - b. Cylinder Depth: 32.1 inches (816 mm).
 - c. Height: 81.4 inches (2068 mm).
 - d. Depth: 76.3 inches (1939 mm).
 - e. Width: 69.7 inches (1770 mm).
 - f. Floor to Door Height: 31.8 inches (807 mm).
 - g. Door Opening: 26.9 inches (684 mm).
 3. Dynamic Load: Dynamic load to floor shall not exceed 1482-pounds with a frequency of 12.1 Hz.
 4. Auxiliary Heating: Steam.
 - a. Steam Pressure: 29 to 87 psi (2-6 bar).
 - b. Steam Flow: 794 lbs/hr (360 kg/hr).
 5. Performance:
 - a. Washing Speeds: 17/22/27/32 RPM.
 - b. Spin Speeds: 32/66/250/405/565/725 RPM.
 - c. G-Force: 0.75/3.2/46/120/234/386.
 6. Mechanical:
 - a. Drain: 5 inches (125 mm).
 - b. Inlets: 2 inch (51mm).
 - c. Water Pressure: 30-60 psi (2-4 bar).
 - d. Water Flow Rate: 58 gal/min (220 l/min).
 - e. Steam Connection: 1 inch (25.4 mm).
 - f. Motor Power: 11 kW.
 - g. Power: Coordinate per Electrical Drawings

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.
- C. Check surfaces for level prior to installing equipment. If surfaces are not in an acceptable condition, notify the Architect immediately of the condition.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

- B. Install all hookups in accordance with UPC and NEC requirements.

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 11 23 00

SECTION 11 30 13 – RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Allowances: See Division 1 Section "Price and Payment Procedures" for appliance allowances.
- B. Submittals: Product Data.
- C. See mechanical drawings for additional specifications.
- D. Regulatory Requirements: Comply with provisions of the following product certifications:
 - 1. NFPA: Provide electrical appliances listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - 2. UL and NEMA: Provide electrical components required as part of residential appliances that are listed and labeled by UL and that comply with applicable NEMA standards.
 - 3. ANSI: Provide gas-burning appliances that comply with ANSI Z21 Series standards.
 - 4. NAECA: Provide residential appliances that comply with NAECA standards.

PART 2 - PRODUCTS

2.1 RESIDENTIAL APPLIANCES

- A. Gas Range 36 inch wide, freestanding with 6 burners.
 - 1. Imperial 36" restaurant range
 - 2. Stainless steel finish
- B. Microwave oven: built-in above countertop; 1,000 watt
- C. Exhaust Hood by Accurex; wall mounted; See mechanical drawings for specifications.
- D. Refrigerator/Freezer: Freestanding, two-door with door ice maker.
 - 1. G.E 21.9 Cu. Ft. Counter Depth Side by Side Refrigerator
 - 2. Model # GZS22DMJES
 - 3. Stainless steel finish

- E. Dishwasher: Built-in, undercounter, automatic dishwasher, sized to replace 24 inch base cabinet; stainless steel finish; G.E. Model # GDF570SGJ/SSJ
- F. Clothes Washer: Freestanding, front loading with steam, automatic clothes washer with 4.9 DOE cu. Ft. capacity. Model #GFW490RPK/RSK
- G. Clothes Dryer: Freestanding, front loading clothes dryer, with 8.3 cu. Ft. capacity RightHeight Front Load Electric dryer with steam.
- H. Ice maker: Freestanding; Manitowoc Indigo Series 450 Ice Cube Machine with storage bin.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Built-in Appliances: Securely anchor to supporting cabinetry or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and rough openings are completely concealed.
- B. Freestanding Appliances: Place in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.
- C. Test each item of residential appliances to verify proper operation. Make necessary adjustments.
- D. Verify that accessories required have been furnished and installed.

END OF SECTION 11 30 13

SECTION 13 34 19 – METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Design, fabricate and erect the metal building, including
 - a. Structural steel main building frames
 - b. Secondary framing including purlins and girts
 - c. Roof and wall panels and trims
 - d. Gutter and downspouts
 - e. Overhangs
 - f. Walk doors and windows
 - g. Roof ventilators
 - h. Translucent panels
 - i. Insulation

1.2 SYSTEM DESCRIPTION

The building shall include all primary and secondary structural framing members, connection bolts, roof and wall covering, trim, fasteners, closures, sealer, canopies, roof extensions, windows, doors, skylights, insulation, gutters, downspouts, louvers, ventilators and other miscellaneous items as stated in the specifications and/or shown or called for on the drawings.

- A. Primary framing shall consist of transverse rigid frames of rafters and columns with solid webs. The rigid frame shall be fabricated of shop-welded steel plate and designed for erection by field bolting. Frames shall be:
 - a. clear span or modular with intermediate columns
 - b. gabled or single sloped
 - c. with tapered or uniform depth exterior columns
- B. Secondary framing shall consist of purlins, girts, eave struts, flange braces and sag angles as required by design
- C. Horizontal loads not resisted by main frame action shall be resisted by
 - a. standard cable or rod x-bracing in the roof
 - b. standard cable or rod x-bracing, rigid portal frames, or shear wall by others in the sidewalls
 - c. panel diaphragm, standard cable or rod x-bracing, rigid portal frames, or shear wall by others in the endwalls
- D. Roof and Wall System consists of preformed steel panels, trim, and accessories as required for a complete installation.

- E. Building overall dimensions, bay spacing, post spacing, eave height, clear dimensions and roof pitch shall be as indicated on the drawings and as defined here.
 - a. The building "Width" shall be the measurement from outside face to outside face of the sidewall girts.
 - b. The building "Length" shall be the measurement from outside face to outside face of the endwall girts.
 - c. "Eave" to be determined as the line along the sidewall formed by the intersection of the planes of the roof and sidewall.
 - d. "Eave Height" is defined as the vertical dimensions as measured from the finished floor to the intersection of the planes of the roof and sidewall.
 - e. The "Bay Spacing" shall be the distance between the centerlines of frames for interior bays and the distance from the outside face of endwall girt to the centerline of the adjacent interior frame for end bays.
 - f. The "Module Spacing" shall be measured between the centerlines of interior columns for interior modules and the distance from the outside face of sidewall girts to the centerline of the adjacent interior column.
 - g. "Roof Pitch" shall be the inches of vertical rise per inches of horizontal run, expressed as inches of rise per 12 inches of run.

1.3 DESIGN REQUIREMENTS

- A. Design primary and secondary structural members and exterior covering materials for applicable load and combinations of loads in accordance with the building code requested. Design loads shall be combined to produce maximum stresses within the structure in accordance with AISC and/or AISI as they apply.
- B. The design loads plus Dead Load shall be used in the structure design.
 - a. Roof Live Load shall be applied on the horizontal projection of the roof. Live Load reduction shall be applied according to the code specified above.
 - b. Wind Load shall be applied as pressure and suction in accordance with standard design criteria.
 - c. The Roof Snow Load shall be applied on the horizontal projection of the roof.
 - d. The Ground Snow Load shall be used with the exposure factor, thermal factor, slope factor and importance factor to determine the Roof Snow Load.
 - e. The metal building system shall be designed for snowdrift conditions if required based on location of the facility.
 - f. Collateral loads shall be those other than the basic design loads for which the building must be adequately designed. Loads of this type include,

but shall not be limited to, suspended ceilings, sprinkler, electrical or mechanical systems, or any suspended or roof mounted HVAC units.

- C. The building components shall be designed to the following minimum deflection requirements, unless a specific deflection is required by the building code. Deflection based on wind shall be based on a 10-year map, or 75% of the design pressure for a 50-year map.

- | | |
|---|-----------|
| a. Rafter and purlins without ceiling under Snow Load, Wind Load, or Live Load | *L / 180 |
| b. Rafter and purlins with non-plaster ceiling under Snow Load, Wind Load, or Live Load | L / 240 |
| c. Rafter and purlins supporting plaster ceiling under Snow Load, Wind Load, or Live Load | L / 360 |
| d. Frame sidesway with metal walls under 10-year wind load | EH / 60 |
| e. Frame sidesway with brittle wall material under 10-year wind load | **H / 100 |
| f. Girts with metal wall panel under 10-year wind load | L / 90 |
| g. Girts supporting brittle wall material under 10-year wind load | L / 240 |
| h. Roof panel under Dead Load + Live Load | L / 60 |
| i. Wall panel under 10-year wind load | L / 60 |

* Live Load L / 150 supporting metal roof

** Brittle finish walls must be designed with hinge at the base unless noted otherwise

1.4 SUBMITTALS

- A. Erection Drawings including:
- Anchor rod setting plan, base plate details and column reactions
 - Roof framing plan
 - Wall framing elevations
 - Transverse cross sections
 - Panel layout
 - Exact location of factory located openings
 - Approximate location of field located openings

- h. Framing details
 - i. Flashing details
 - j. Accessory details
- B. Design calculations, stamped by a Professional Engineer registered in the state where building will be erected, including:
 - a. Stress analysis
 - b. Deflection analysis
 - c. Foundation loads for each loading case
- C. Letter of Certification, prepared and signed by a Professional Engineer, verifying that building design meets indicated loading requirements and building code as requested.

1.5 QUALIFICATIONS

- A. The company manufacturing the products specified in this Section shall:
 - a. be a member of MBMA
 - b. be in compliance with the International Accreditation Service, Inc., Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems (IAS AC472)
 - c. have a minimum of 20 years' experience in the manufacturing of steel building systems
- B. Acceptable Manufacturers
 - a. CHIEF Buildings or equal manufacturer
- C. Erector's Qualifications
 - a. Minimum of 5 years' experience in this or similar trade
 - b. Five similar installation references in the past 3 years

1.6 WARRANTY

- A. The metal building manufacturer shall warrant for 5 years that components were free from defects in composition of material and workmanship and in accordance with industry standard for such components.
- B. Unpainted Galvalume® panels shall be warranted by the metal building manufacturer for 25 years against rupture, perforation, or structural failure as a result of corrosion caused by exposure to normal atmospheric conditions.
- C. The exterior silicone polyester color finish of factory coated roof panels shall be warranted by the metal building manufacturer for 25 years against peeling, cracking, checking, and flaking. The panel shall not color change more

than 7 NBS units as per ASTM D2244. Chalking shall not exceed a number 6 rating when measured per ASTM D 4214, method A.

- D. The exterior polyvinylidene fluoride (PVDF) color finish of factory coated roof panels shall be warranted by the metal building manufacturer for 35 years against peeling, cracking, checking, and flaking. The panel shall not color change more than 5 NBS units as per ASTM D2244. Chalking shall not exceed a number 8 rating when measured per ASTM D 4214, method A.
- E. The exterior silicone polyester color finish of factory coated wall panels shall be warranted by the metal building manufacturer for 25 years against peeling, cracking, checking, and flaking. The panel shall not color change more than 5 NBS units as per ASTM D 2244. Chalking shall not exceed a number 8 rating when measured per ASTM D 4214, method A.
- F. The exterior polyvinylidene fluoride (PVDF) color finish of factory coated wall panels shall be warranted by the metal building manufacturer for 35 years against peeling, cracking, checking, and flaking. The panel shall not color change more than 5 NBS units as per ASTM D 2244. Chalking shall not exceed a number 8 rating when measured per ASTM D 4214, method A.
- G. Provide the owner with a copy of all warranties.

PART 2 - PRODUCTS

2.1 MATERIALS – STRUCTURAL FRAMING

A. General

a. Structural steel members shall be sheared, plasma cut, formed, punched, welded and painted in the plant of the manufacturer. All shop connections shall be welded in accordance with the AWS "Standard Code for Welding in Building Construction".

b. All structural framing members shall be prepared according to SSPC-SP2 and given one shop coat of KMAA148: "VectroCoat 300 Gray" modified acrylic paint applied by Anodic Electrocoat process.

c. All framing members shall carry an easily visible identifying mark to aid the erector in the erection of the building.

d. Field connections shall be bolted with high strength bolts and nuts.

B. Primary Structural Members

a. The primary structural members shall be rigid framing manufactured of solid web members having tapered or uniform depth rafters rigidly connected to tapered or uniform depth columns.

b. Steel used to fabricate built up framing members shall be 55,000 PSI minimum yield point material and shall conform to the physical characteristics of ASTM A1011, ASTM A572 or ASTM A529, Grade 55.

- c. Steel used for interior pipe columns, if required, shall be 35,000 PSI minimum yield point material.
- d. The building manufacturer shall have on file certified mill test reports that verify that these requirements have been met.

C. Secondary Structural Members

- a. Secondary structural framing shall distribute the loads to the primary structural system and shall include endwall columns and rafters, purlins, girts, eave struts, base support, headers, jambs, flange bracing, clips, and other miscellaneous structural framing.
- b. Steel used for cold-formed members shall be 55,000 PSI minimum yield point material and shall conform to the physical characteristics of ASTM A1011 Grade 55.
- c. Light gauge cold-formed sections shall be manufactured by precision roll or brake forming. All dimensions shall be true, and the formed member shall be free of fluting, buckling or waviness.
- d. Endwall rafters shall be manufactured from built-up sections of adequate size and thickness as determined by the design criteria.
- e. Endwall columns shall consist of built-up sections or cold formed "C" sections of adequate size and thickness as determined by the design criteria.
- f. Purlins and girts shall be precision roll-formed 8" or 10" deep "C" sections or "Z" sections of adequate size and thickness as determined by the design criteria, minimum 16 gauge. Purlins and girts shall be either simple span or continuous span members.
- g. Eave struts shall be precision roll-formed and/or press brake formed "C" sections, minimum 14 gauge. The upper flange shall slope with the normal roof slope, and the web shall be vertical and free to receive the sidewall covering.
- h. Base support shall consist of a continuous base angle, base "C", or an 18 gauge one-piece base member to which the base of the wall covering shall be attached. The base support shall be securely fastened into the concrete by the erector.
- i. Headers and jambs shall be precision roll-formed "C" sections of the same depth as the girts.
- j. Flange bracing shall consist of angle or tube members connected to the web of the purlin or girt and to the compression flange of the primary structural member.
- k. Clips shall be fabricated from 55,000 PSI minimum yield point material and be factory punched for field bolted connections.

D. Bracing

- a. Horizontal load resisting bracing shall be accomplished by diagonal cable bracing, rod bracing, portal frames, and/or diaphragm action of the roof and wall covering.
- b. All cables for diagonal bracing shall be fabricated from extra high strength Grade-7 wire Class A coating, left hand lay, galvanized steel strand, conforming to the provisions of ASTM A475. Adjustment shall be provided by an eyebolt assemble.
- c. Rod bracing shall be fabricated from minimum 5/8" diameter steel rod conforming to the provisions of ASTM A36.
- d. Portal frames shall be fabricated of built-up sections and conform to the same specifications as primary framing.

2.2 MATERIALS – ROOF SYSTEM

Roof panel shall be the following:

- A. Standing seam roof system
 - a. Roll formed profile shall be MVP (Mechanically seamed Vertical leg Pencil-rib panel) as manufactured by CHIEF Buildings. Panels shall have an interlocking 2" deep vertical leg spaced at 16" center, with 3 minor pencil ribs evenly spaced between the vertical legs. Each panel shall provide a net coverage width of 16".
 - b. Side laps shall be sealed with factory-applied non-skinning, non-hardening mastic. The side laps shall be field seamed using a mechanical seaming device provided by the manufacturer.
 - c. Panels shall be manufactured from 24 gauge, 50,000 PSI material.
 - d. The MVP roof system shall have concealed clips. Clips shall be floating (sliding) to allow for thermal movement.
 - e. Panels shall be one piece for slope lengths less than 52'-0". The panel end lap, if required, shall have butyl sealant sandwiched between the top and bottom panel with a heavy gage factory applied metal backer plate.
 - f. Roof panel assemblies shall have a UL Class 30, 60, or 90 uplift rating in accordance with UL 580 "Tests for Uplift Resistance of Roof Assemblies".
 - g. Roof system shall have been tested in accordance with the procedures in ASTM E1592 (Structural Performance by Uniform Static Air Pressure Differential).
 - h. Roof panel assemblies shall have permanent resistance to air leakage through assembly of not more than 0.0026 cfm/sf of fixed roof area when tested according to ASTM E1680 at a static pressure differential of 6.25 psf.
 - i. Roof panel assemblies shall have no water penetration as defined in the test method when tested according to ASTM E1646 at a static pressure differential of 12.0 psf.
 - j. No field notching of panels shall be required.

- k. Panel finish shall be acrylic coated Galvalume® AZ55 coating in accordance with ASTM A792.

2.3 MATERIALS – WALL SYSTEMS

A. Exterior wall panel

- a. Roll formed profile shall be CS (Chief Standard) configuration as manufactured by CHIEF Buildings. Panels shall have 1 1/8" deep major ribs spaced at 12" on center, with minor ribs between major ribs. Each panel shall provide a net coverage width of 36".
- b. Manufactured from 26 gauge, 50,000 PSI material.
- c. Wall panel assemblies (when installed with mastic in the walls) shall have permanent resistance to air leakage through assembly of not more than 0.006 cfm/sf of fixed wall area when tested according to ASTM E283 at a static pressure differential of 6.24 psf.
- d. Wall panel assemblies (when installed with mastic in the walls) shall have no water penetration as defined in the test method when tested according to ASTM E331 at a static pressure differential of 12.0 psf
- e. Substrate shall be Galvalume® AZ50 coating in accordance with ASTM A792.
- f. Sheets shall be coated with a fluoropolymer topcoat containing not less than 70% polyvinylidene fluoride (PVDF) over primer with total DFT of 0.8 – 1.0. The reverse side shall be coated with pigmented polyester. Exterior color to be selected from Chief standard color choices.

- B. Liner panel, shall be 29 gauge with a white polyester finish, rollformed to Chief's standard CS profile.

2.4 MATERIALS – SOFFIT

A. Soffit Panel

- a. Roll formed profile shall be FSP-12 (Flat Soffit Panel) configuration as manufactured by CHIEF Buildings. Panels shall attach to framing members using concealed fasteners. Each panel shall provide a net coverage width of 12" and have one stiffening rib.
- b. Panels shall be manufactured from 26 gauge, 50,000 PSI material having a maximum length of 6'-0".
- c. Substrate shall be Galvalume® AZ50 coating in accordance with ASTM A792.
- d. Sheets shall be coated with a fluoropolymer topcoat containing not less than 70% polyvinylidene fluoride (PVDF) over primer with total DFT of 0.8 – 1.0. The reverse side shall be coated with pigmented polyester. Exterior color to be selected from Chief standard color choices.

2.5 MATERIALS – TRIM

- A. Trim shall be 26 gauge with a fluoropolymer topcoat containing not less than 70% polyvinylidene fluoride (PVDF) typical to wall panels. The reverse side shall be coated with pigmented polyester. Exterior color to be selected from Chief standard color choices.
- B. Provide all trim pieces necessary to achieve a finished appearance. Gable trim and eave trim or gutter shall have a roll formed face to maintain uniformity. Provide corner boxes to transition from gable trim to eave trim or gutter. Gutter, if required, shall have a horizontal bottom leg and the front leg shall not project above the bottom of roof panel.
- C. Provide trim at all corners of the building and for all sides of framed openings. Provide trim for base of building if required.
- D. Downspouts, if required, shall be 26 gauge with a fluoropolymer finish and shall have a minimum cross sectional area of 15.85 square inches. Downspouts shall terminate with an elbow at approximately 75° or transition to an underground drainage system.

2.6 INSULATION

- A. Roof and wall insulation shall be fiberglass rolls with 0.6 lb. per cu. ft. density, thickness as indicated, with a flame spread rating of 25 or less in accordance with ASTM E84. Insulation shall comply with NAIMA 202 Standards.

2.7 ACCESSORIES

- A. Fasteners to be manufacturer's standard long life fasteners. Exposed fastener heads to be factory painted to match the panel color. Self-drilling fasteners shall be used for panel to structural connections. Lap teks shall be used for panel to panel and panel to trim connections. Pop rivets shall be used at end laps of eave and gable trims.
- B. Closed cell foam closure strips, die cut to match CS or AP panel configuration. Metal closures shall be used with STC or MSC panel.
- C. Mastic for roof side laps, end laps, and flashings to be a non-hardening butyl tape, non-corrosive to the substrate, of 100% solids. Tape size to be minimum 3/32" x 3/4", supplied in rolls.
- D. Caulk shall be manufacturers standard product as appropriate for the application.
- E. Thermal blocks of expanded polystyrene shall be supplied with standing seam roof systems when required for the requested insulation thickness. The thickness of the thermal block shall be compatible with the clip height and insulation thickness.
- F. Louvers shall be 3' x 3' self-framing and self-flashing units with insect screen. Louver frame to be minimum 18 gauge galvanized and blades to be minimum 20 gauge galvanized. Finish to be electrostatically applied polyester paint. Operator to be either hand crank or chain operator.

- G. Continuous gravity ventilators shall have 9" or 12" throat, supplied in 10' lengths, with bird screen. Ventilators to be of low profile design to provide gravity type ventilation. Include flashing for either single unit or continuous-run installation. 9" x 10' unit shall have a base ventilating capacity of 2700 and the 12" x 10' unit shall have a base ventilating capacity of 3600 CFM, assuming 10 degree temperature differential and 5 mph wind speed. Exterior parts to be minimum 26 gauge in Galvalume or painted galvanized. Interior parts to be G90 galvanized.
- H. Roof curbs shall be used at all roof penetrations except pipes 13" diameter and less. Roof curb shall have a structural sub-frame. Curb and sub-frame shall be designed to support the weight of the unit. Curb shall be designed specifically for the model number of the roof top unit. Curb shall be supplied with rib covers and all necessary fasteners and mastic for a weathertight installation. The roof curb shall be a two piece floating curb when required by building conditions.
- I. Roof Jacks shall be used at all 13" diameter and less pipes that penetrate the roof. Roof jacks shall be EPDM with a flexible aluminum base to form a weathertight seal at the roof panel.

2.8 FABRICATION

- A. Fabricate built-up members in accordance with MBMA Low Rise Building Systems Manual, Common Industry Practices.
- B. Fabricate hot rolled members in accordance with AISC Specification for pipe, tube, and rolled structural shapes.
- C. Fabricate cold formed members in accordance with MBMA Low Rise Building Systems Manual, Common Industry Practices.
- D. Provide factory drilled or punched framing members for field bolted connections.
- E. All framing members shall be prepared according to SSPC-SP2 and given one shop coat of KMAA148: "VectroCoat 300 Gray" modified acrylic paint applied by Anodic Electrocoat process.
- F. Clearly and legibly mark each piece to correspond with previously prepared erection drawings.

PART 3 - EXECUTION

3.1 ERECTION – FRAMING

- A. Erect framing in accordance with MBMA Low Rise Building Systems Manual, Common Industry Practices.
- B. The erector shall furnish temporary guys and bracing where needed for squaring, plumbing, and securing the structural framing against loads, such as wind loads acting on the exposed framing and seismic forces, as well as loads due to erection equipment and erection operation, but not including

loads resulting from the performance of work by others. Bracing furnished by the manufacturer for the metal building system cannot be assumed to be adequate during erection. The temporary guys, braces, falseworks and cribbing are the property of the erector, and the erector shall remove them immediately upon completion of erection.

- C. Do not field cut or alter structural members without approval of the metal building manufacturer.
- D. After erection, prime welds, abrasions, and surfaces not shop primed.

3.2 ERECTION – WALL AND ROOFING SYSTEM

- A. Install in accordance with manufacturer's instructions.
- B. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.
- C. Fasten cladding system to structural supports, aligned level and plumb.

3.3 ERECTION – GUTTER AND DOWNSPOUTS

- A. Install gutters and downspouts in strict accordance with manufacturer's instructions.
- B. Connect downspouts to storm sewer system or install splash pans.

3.4 INSTALLATION - ACCESSORIES

- A. Install accessories in accordance with manufacturer's instructions.
- B. Seal wall and roof accessories weathertight.

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Ceram-A-Star® is a registered trademark of AkzoNobel.

END OF SECTION 13 34 19

SECTION 22 40 00 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data for each type of plumbing fixture.
- B. Comply with requirements of Public Law 102-486, "Energy Policy Act," regarding water flow rate and water consumption of plumbing fixtures.
- C. Comply with applicable standards below:
 - 1. National Sanitation Foundation Construction: NSF 61.
 - 2. Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act."
 - 3. Public Law 102-486, "Energy Policy Act."

PART 2 - PRODUCTS

- 2.1 Provide plumbing fixtures as specified and as scheduled on the drawings.

PART 3 - EXECUTION

3.1 INSTALLATIONS

- A. Install fitting insulation kits on fixtures for people with disabilities.
- B. Install fixtures with flanges and gasket seals.
- C. Install flush valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.
- D. Fasten wall-hanging plumbing fixtures securely to supports attached to building substrate when supports are specified, and to building wall construction where no support is indicated.
- E. Fasten floor-mounted fixtures to substrate. Fasten fixtures having holes for securing fixture to wall construction, to reinforcement built into walls.
- F. Fasten wall-mounted fittings to reinforcement built into walls.
- G. Fasten counter-mounting plumbing fixtures to casework.
- H. Secure supplies to supports or substrate within pipe space behind fixture.

- I. Install individual supply inlets, supply stops, supply risers, and tubular brass traps with cleanouts at fixture.
- J. Install water-supply stop valves in accessible locations.
- K. Install traps on fixture outlets. Omit traps on fixtures having integral traps. Omit traps on indirect wastes, unless otherwise indicated.
- L. Install escutcheons at wall, floor, and ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons where required to conceal protruding pipe fittings.
- M. Seal joints between fixtures and walls, floors, and counters using sanitary-type, one-part, mildew-resistant, silicone sealant. Match sealant color to fixture color.
- N. Install piping connections between plumbing fixtures and piping systems and plumbing equipment. Install insulation on supplies and drains of fixtures for people with disabilities.
- O. Ground equipment. Tighten electrical connectors and terminals according to UL 486A and UL 486B.

END OF SECTION 22 40 00



1. Product Name

AIRVAC 911® Engine Exhaust Removal System

2. Manufacturer

Air Vacuum Corporation
 6 Faraday Drive, Unit 2
 Dover, NH 03820
 Phone: 603-743-4332, 800-540-7264
 Fax: 603-743-3111
 Email: sales@airvacuumcorporation.com
 Web: www.airvac911.com

3. Product Description

Basic Use

AIRVAC 911® is a fully-automated, self-contained, hoseless system used to remove engine exhaust from indoor parking areas of public safety buildings. Manufactured and distributed directly since 1994 by Air Vacuum Corporation, the AIRVAC 911 system requires no hose connections, no structural modifications, and no exhausting to the outdoors. Ceiling hung, the system automatically removes harmful diesel or gasoline fumes and particulates, as well as hazardous backwash, without interference to daily operations.

The AIRVAC 911 system meets NFPA 1500, OSHA, IBOCA, EPA and GSA standards.

Composition and Materials

AIRVAC 911 is a self-contained unit enclosed in 16 or 18 gauge cold-rolled steel. The unit has four-sided adjustable discharge grills that maintain the 360-degree clean air output.

A standard AIRVAC 911 is equipped with a 3/4 HP, 60 Hz, 115/208-230 volt, single-phase motor. It includes a 4-stage filter pack:

- Stage 1 pre-filter: 3-ply polyester and heavy-gauge wire frame
- Stage 2 main media filter: HEPA Max 3000 filter and galvanized steel frame assembly
- Stage 3, 4 gas-phase extractor: Multisorb 3000 blended gas phase extractor and 24-gauge metal frame



Units are controlled through a UL® certified AVEC Smart Timer Panel (AVEC -2C, -4C, -6C, -8C, -10C), which controls multiple units (2, 4, 6, 8, 10 units, respectively).

Vehicle movement and overhead door movement triggers the standard photoelectric eye/door switch combination. Other triggering options are available. General run times are 15–20 minutes per cycle.

System and configuration options are available.

Size

See Table 1.

Color

Industrial, baked, gray powder coat finish

Benefits

- Provides a safe environment for workers and patients
- Eliminates “exhaust backwash” of fumes
- Multi-directional vertical and horizontal airflow cleans air in a uniform pattern
- Fully-adjustable air return vents maximize airflow
- Compact and quiet
- Easy to install and maintain
- Energy efficient — no heating or cooling loss
- Improved response time — nothing to disconnect
- Made in the USA

Table 1 Technical Data**AIRVAC 911**

Cabinet Dimensions	26" wide x 25" deep x 35" high		
Weight	190 lbs with filtration; 135 lbs without filtration		
Construction	18 and 16 gauge steel		
Filters	Stage 1	Stage 2	Stage 3, 4
Type	Pre-filter	Main media HEPA 3000	Gas-phase extractor, Multisorb 3000
Size	24" x 24" x 1"	24" x 24" x 6"	24" x 24" x 4"
Testing	--	UL/ULC classified; Class 2 filter ASHRAE 52.2 tested to MERV 16 (>98% efficiency)	--

Motor

Standard:	3/4 HP	115 Volt	1 Phase	60 Hz	13 FL amps	1.25 SF
Optional:	3/4 HP	208-230 volt	1 Phase	60 Hz	6.3-6.5 0 FL amps	1.25 SF
	3/4 HP	190 volt	3 Phase	50 Hz	3 FL amps	1.15 SF
	3/4 HP	380-415 volt	3 Phase	50 Hz	1.5-1.7 FL amps	1.25 SF
	1 HP	115/208-230 volt	1 Phase	60 Hz	14.7/7.2-7.4 FL amps	1.15 SF
	1 HP	208-230/460 volt	3 Phase	60 Hz	3.4-3.4/1.7 FL amps	1.15 SF

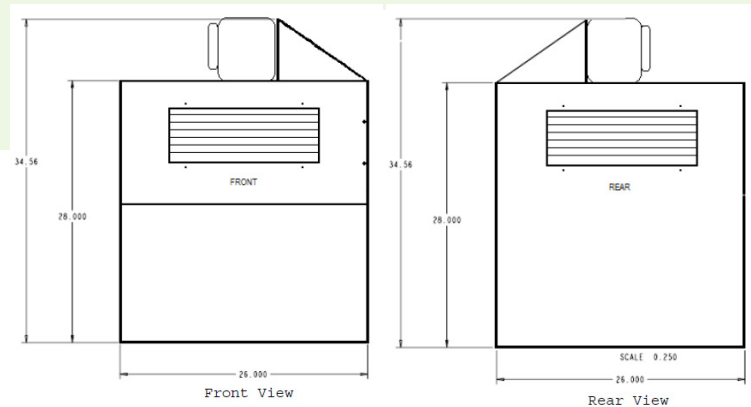
AVEC Smart Timer

Single zone:

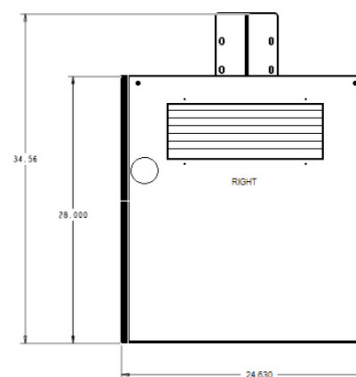
- AVEC-2C (operates 1-2 units)
- AVEC-4C (operates 2-4 units)
- AVEC-6C/T2 (operates 4-6 units with sequential start-up)
- AVEC-8C/T3 (operates 6-8 units with sequential start-up)
- AVEC-10C/T4 (operates 8-10 units with sequential start-up)

Zoned:

- AVEC-4C/Z (2 zone; operates 1-2 units per zone)
- AVEC-6C/Z (4C + 2C)
- AVEC-6C/Z2 (2C + 2C + 2C)
- AVEC-8C/Z (4C + 4C)
- AVEC-8C/T2/Z (6C/T2 + 2C)
- AVEC-8C/Z2 (4C, 2C, 2C)
- AVEC-10C/T2/Z (4C + 4C)
- AVEC-10C/T3/Z (8C/T3 + 2C)
- AVEC-10C/T2/Z2 (6C/T2, 2C, 2C)

**System Activation Devices**

Standard	Magnetic door switch (one per overhead door) Photoelectric eyes (detect vehicle movement)
Optional	Manual push button Spring wound timer Vehicle ignition wireless transmitter and receiver Standalone CO sensor 24V Standalone CO sensor 120V CO and NO ² combo sensor 24V CO and NO ² combo sensor 120V Tone alert activation



4. Technical Data

Applicable Standards

American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

- ASHRAE 52.2 Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

National Fire Protection Association (NFPA)

- NFPA 1500 Standard on Fire Department Occupational Safety and Health Program, 2013 Edition

Underwriters Laboratories, Inc. (UL)

- UL 508 Standard for Industrial Control Panels
- UL 900 Standard Method of Fire Tests for Air Filter Units

Underwriters Laboratories of Canada (ULC)

- ULC/CAN S111 Standard Method of Fire Tests for Air Filter Units

Approvals

Stage 2 filter

- UL Classified by Underwriters Laboratory, Inc.
- ULC Classified by Underwriters Laboratories of Canada

AVEC Smart Timer control panel

- UL 508 certified

Performance

Installed in accordance with the manufacturer's instructions, the AIRVAC 911 system meets NFPA 1500, OSHA, IBOCA, EPA and GSA standards.

AmerSeal filters are UL and CUL classified to UL Standard 900 and ULC/CAN S111.

Physical & Technical properties

See Table 1.

5. Installation

Preparatory Work

AIRVAC 911 does not require structural changes to the building or vehicle tailpipe, exhausting to outdoors or manual connections. Consult an AIRVAC 911 representative for preparatory electrical requirements on new building construction.

Methods

Installation is performed by an AIRVAC 911 technician or local licensed electrician. Units are ceiling hung via chain or threaded rod and mounted between bays to eliminate interference with vehicle movement. Power is supplied to each unit location from the building's main electrical panel through the AVEC Smart Timer. Low Voltage connections are necessary for the activation devices.

Building Codes

Installation must comply with the requirements of all applicable local, state and federal code jurisdictions.

Precautions

For installation safety, Stage 2 total weight should not exceed 16 lbs.; total unit weight should not exceed 190 lbs. Stage 3 and 4 filters should not exceed 28 lbs. Allow airflow to incorporate a vertical and horizontal airflow pattern.

6. Availability and Cost

AIRVAC 911 is distributed globally by Air Vacuum Corporation. Contact Air Vacuum Corporation for availability and cost information.

7. Warranty

The AIRVAC 911 Engine Exhaust Removal System comes with a five-year warranty on all unit components excluding consumable filters. Contact Air Vacuum Corporation for details.

8. Maintenance

Filter life expectancy is dependent upon station activity. Consult Air Vacuum Corporation for a detailed estimate. The filter gauge on the unit indicates filter load.

General life expectancy:

- Stage 1 prefilter: 1–6 months
- Main filters (Stages 2-4): 12–24+ months

9. Technical Services

Technical assistance, including detailed information, product literature, test results, project lists, assistance in preparing project specification or installation supervision is available by contacting Air Vacuum Corporation.

For questions about specifications, code regulations, product usage or product installation, visit Air Vacuum Corporation website: www.airvac911.com.

10. Filing Systems

- CMD
- Additional product information is available from Air Vacuum Corporation upon request

SECTION 26 41 00 – FACILITY LIGHTNING PROTECTION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Summary: Lightning protection for buildings.
- B. Submittals: Product Data.
- C. Provide UL Master Label.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Roof-Mounting Air Terminals: NFPA Class I copper, solid, unless otherwise indicated.
 - 1. Single-Membrane, Roof-Mounting Air Terminals: Designed for single-membrane roof materials.
- B. Stack-Mounting Air Terminals Solid copper.
- C. Ground Rods: Copper-clad steel with a minimum of 27 percent of rod weight in copper cladding, 3/4 inches in diameter; 10 feet long.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install lightning protection components and systems according to L 96A LPI-175 and NFPA 780.
- B. Install conductors with direct paths from air terminals to ground connections. Avoid sharp bends and narrow loops. Where indicated, run conductors in nonmetallic raceway.
- C. Conceal system down interior conductors.
- D. Cable Connections: Exothermic-welded connections for conductor splices and connections between conductors and other components, except those above single-ply membrane roofing.
- E. Air Terminals on Single-Ply Membrane Roofing: Comply with air terminal and adhesive manufacturers' written installation instructions.

- F. Do not combine materials that can form an electrolytic couple that will accelerate corrosion in the presence of moisture, unless moisture is permanently excluded from the junction of such materials.
- G. Use conductors with protective coatings where conditions would cause deterioration or corrosion of conductors.

END OF SECTION 26 41 00

SECTION 26 51 19 – LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes the following types of LED luminaires. PLEASE SEE ELECTRICAL DRAWING FOR REQUIRED FIXTURE TYPES AS APPLICABLE
 - 1. Cylinder.
 - 2. Downlight.
 - 3. Highbay, linear.
 - 4. Linear industrial.
 - 5. Lowbay.
 - 6. Parking garage.
 - 7. Recessed linear.
 - 8. Strip light.
 - 9. Surface mount, linear.
 - 10. Surface mount, nonlinear.
 - 11. Suspended, linear.
 - 12. Suspended, nonlinear.
 - 13. Materials.
 - 14. Finishes.
 - 15. Luminaire support.
- B. Related Sections:
 - 1. Division 16 Section "Wiring Devices" for manual wall-box dimmers for incandescent lamps.

1.2 SUBMITTALS

- A. Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, and finishes.
- B. Field quality-control reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

1.4 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
- B. Warranty Period: at least Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products indicated on Drawings.

2.2 LUMINAIRE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Standards:
 - 1. ENERGY STAR certified.
 - 2. California Title 24 compliant.
 - 3. NRTL Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by an NRTL.
 - 4. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.
 - 5. UL Listing: Listed for damp location.
 - 6. Recessed luminaires shall comply with NEMA LE 4.
 - 7. User Replaceable Lamps:
 - a. Bulb shape complying with ANSI C78.79.
 - b. Lamp base complying with ANSI C81.61, IEC 60061-1.
- C. CRI of minimum 80. CCT of 3000 K.
- D. Minimum rated lamp life of 50,000 hours to L70.
- E. Lamps dimmable from 100 percent to 0 percent of maximum light output.
- F. Internal driver.
- G. Nominal Operating Voltage: [120 V ac] [240 V ac] [277 V ac] [12 V dc] [24 V dc].
 - 1. Lens Thickness: At least 0.125 inch (3.175 mm) minimum unless otherwise indicated.
- H. Housings:

1. Extruded-aluminum housing and heat sink.
2. Anodized finish.

2.3 CYLINDER

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 250 lumens. Minimum allowable efficacy of 80 lumens per watt.
- C. With integral mounting provisions.

2.4 DOWNLIGHT

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 1000 lumens. Minimum allowable efficacy of 80 lumens per watt.
- C. Universal mounting bracket.
- D. Integral junction box with conduit fittings.
- E. Optics per electrical drawings.

2.5 HIGHBAY, LINEAR

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 10,000 lumens. Minimum allowable efficacy of 80 lumens per watt.

2.6 HIGHBAY, NONLINEAR

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 10,000 lumens. Minimum allowable efficacy of 80 lumens per watt.
- C. Universal mounting bracket.
- D. Integral junction box with conduit fittings.

2.7 LINEAR INDUSTRIAL

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.

- B. Minimum 5000 lumens. Minimum allowable efficacy of 80 lumens per watt.
- C. Housing and heat sink rated per electrical drawings.

2.8 LOWBAY

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 5000 lumens. Minimum allowable efficacy of 80 lumens per watt.
- C. Universal mounting bracket.

2.9 RECESSED LINEAR

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 1500 lumens. Minimum allowable efficacy of 85 lumens per watt.
- C. Integral junction box with conduit fittings.

2.10 STRIP LIGHT

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
 - a. Minimum Lumens per Linear Foot:
 - 1) 1700, 2700, 3000, 4200, and 6200 K: 260 lumens.
 - 2) 2400 K: 230 lumens.
 - b. CCT: [1700] [2400] [2700] [3000] [4200] [6200] K.
 - c. Minimum Allowable Efficacy: 80 lumens per watt.
 - d. Minimum CRI: 83.
 - e. Minimum Fidelity Index Rating: 80.
 - f. Minimum Gamut Index Rating: 92.
 - g. Maximum Power Consumption: 2.9 W per ft.
 - h. Beam Angle: 120 degrees.
 - i. Printed Circuit Board: 2-oz. copper thickness.
 - j. Adhesive Backing: 3M brand VHB.
 - k. Lamps dimmable from 100 to zero percent of maximum light output.
 - l. Nominal Operating Voltage: [12 V dc] [24 V dc].
 - m. Segment Length: 16 feet (4.88 m) uncut.
 - n. Optional Outdoor Rated Silicone Sleeve: IP 65 Rated.
 - 1) Outdoor Segment Length: [8 feet (2.44 m)] [16 feet (4.88 m)] <Insert number> uncut.

2.11 SURFACE MOUNT, LINEAR

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 750 lumens. Minimum allowable efficacy of 75 lumens per watt.
- C. Integral junction box with conduit fittings.

2.12 SURFACE MOUNT, NONLINEAR

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 750 lumens. Minimum allowable efficacy of 75 lumens per watt.
- C. Integral junction box with conduit fittings.

2.13 SUSPENDED, LINEAR

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 1500 lumens. Minimum allowable efficacy of 85 lumens per watt.

2.14 SUSPENDED, NONLINEAR

- A. Manufacturers: Subject to compliance with requirements, provide products per electrical drawings, to be approved by owner.
- B. Minimum 1500 lumens. Minimum allowable efficacy of 85 lumens per watt.
- C. Integral junction box with conduit fittings.

2.15 MATERIALS

- A. Metal Parts:
 - 1. Free of burrs and sharp corners and edges.
 - 2. Sheet metal components shall be steel unless otherwise indicated.
 - 3. Form and support to prevent warping and sagging.
- B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
- C. Diffusers and Globes:

1. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
2. Glass: Annealed crystal glass unless otherwise indicated.
3. Lens Thickness: At least 0.125 inch (3.175 mm) minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Clear anodized finish.

E. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp characteristics:
 - a. "USE ONLY" and include specific lamp type.
 - b. Lamp diameter, shape, size, wattage, and coating.
 - c. CCT and CRI for all luminaires.

2.16 METAL FINISHES

- A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.17 LUMINAIRE SUPPORT

- A. Comply with requirements in manufacturer's requirements for hangers and supports for Electrical Systems for channel and angle iron supports and nonmetallic channel and angle supports.
- B. Single-Stem Hangers: 1/2-inch (13-mm) steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.
- C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gauge (2.68 mm).
- D. Rod Hangers: 3/16-inch (5-mm-) minimum diameter, cadmium-plated, threaded steel rod.
- E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Lighting fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.
- B. Comply with NECA 1.
- C. Suspended Lighting Fixture Support:
 - 1. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.
 - 2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
 - 3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.
- D. Adjust aimable lighting fixtures to provide required light intensities.
- E. Connect wiring according to Division 16 Section "Conductors and Cables."
- F. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

3.2 FIELD QUALITY CONTROL

- A. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery and retransfer to normal.
- B. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

END OF SECTION 26 51 19

SECTION 26 56 00 - EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes as noted below. PLEASE SEE ELECTRICAL DRAWINGS FOR APPLICABLE REQUIRED FIXTURES:
 - 1. Exterior luminaires with lamps and ballasts.
 - 2. Luminaire-mounted photoelectric relays.

1.2 SUBMITTALS

- A. Product Data: For each luminaire, and support component, arranged in order of lighting unit designation. Include data on features, accessories, and finishes.
- B. Shop Drawings: Anchor-bolt templates keyed to specific poles and certified by manufacturer.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with IEEE C2, "National Electrical Safety Code."
- C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products indicated on Drawings.

2.2 GENERAL REQUIREMENTS FOR LUMINAIRES

- A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.
 - 1. LER Tests HID Fixtures: Where LER is specified, test according to NEMA LE 5B.
- B. Lateral Light Distribution Patterns: Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.

- C. Metal Parts: Free of burrs and sharp corners and edges.
- D. Sheet Metal Components: Corrosion-resistant aluminum unless otherwise indicated. Form and support to prevent warping and sagging.
- E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.
- F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses. Designed to disconnect ballast when door opens.
- G. Exposed Hardware Material: Stainless steel.
- H. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
- I. Light Shields: Metal baffles, factory installed and field adjustable, arranged to block light distribution to indicated portion of normally illuminated area or field.
- J. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:
 - 1. White Surfaces: 85 percent.
 - 2. Specular Surfaces: 83 percent.
 - 3. Diffusing Specular Surfaces: 75 percent.
- K. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.
- L. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.
- M. Factory-Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."
 - 2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.
 - a. Color: As selected by Architect from manufacturer's full range.
- N. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes. Finish shall be as specified on the drawings.
2. Natural Satin Finish: Provide fine, directional, medium satin polish (AA-M32); buff complying with AA-M20; and seal aluminum surfaces with clear, hard-coat wax.
3. Class I, Clear Anodic Finish: AA-M32C22A41 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.
4. Class I, Color Anodic Finish: AA-M32C22A42/A44 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.

a. Color: as specified on the drawings.

- O. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps and ballasts. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp and ballast characteristics:

- a. "USES ONLY" and include specific lamp type.
- b. Lamp tube configuration (twin, quad, triple), base type, and nominal wattage for compact fluorescent luminaires.
- c. Lamp type, wattage, bulb type (ED17, BD56, etc.) and coating (clear or coated) for HID luminaires.
- d. Start type (preheat, rapid start, instant start) compact fluorescent luminaires.
- e. ANSI ballast type (M98, M57, etc.) for HID luminaires.
- f. CCT and CRI for all luminaires.

2.3 LUMINAIRE-MOUNTED PHOTOELECTRIC RELAYS

- A. Comply with UL 773 or UL 773A.
- B. Contact Relays: Factory mounted, single throw, designed to fail in the on position, and factory set to turn light unit on at 1.5 to 3 fc (16 to 32 lx) and off at 4.5 to 10 fc (48 to 108 lx) with 15-second minimum time delay. Relay shall have directional lens in front of photocell to prevent artificial light sources from causing false turnoff.
 1. Relay with locking-type receptacle shall comply with ANSI C136.10.
 2. Adjustable window slide for adjusting on-off set points.

2.4 FLUORESCENT BALLASTS AND LAMPS

- A. Ballasts for Low-Temperature Environments:
 1. Temperatures 0 Deg F (Minus 17 Deg C) and Higher: Electronic type rated for 0 deg F (minus 17 deg C) starting and operating temperature with indicated lamp types.

- B. Ballast Characteristics:
 - 1. Power Factor: 90 percent, minimum.
 - 2. Sound Rating: Class A.
 - 3. Total Harmonic Distortion Rating: Less than 10 percent.
 - 4. Case Temperature for Compact Lamp Ballasts: 65 deg C, maximum.
 - 5. Transient-Voltage Protection: Comply with IEEE C62.41.1 and IEEE C62.41.2, Category A or better.
- C. Low-Temperature Lamp Capability: Rated for reliable starting and operation with ballast provided at temperatures 0 deg F (minus 18 deg C) and higher.

2.5 BALLASTS FOR HID LAMPS

- A. Comply with ANSI C82.4 and UL 1029 and capable of open-circuit operation without reduction of average lamp life. Include the following features unless otherwise indicated:
 - 1. Ballast Circuit: Constant-wattage autotransformer or regulating high-power-factor type.
 - 2. Minimum Starting Temperature: Minus 22 deg F (Minus 30 deg C).
 - 3. Normal Ambient Operating Temperature: 104 deg F (40 deg C).

2.6 HID LAMPS

- A. Metal-Halide Lamps: ANSI C78.43, with minimum CRI 65, and CCT color temperature 4000 K.
- B. Pulse-Start, Metal-Halide Lamps: Minimum CRI 65, and CCT color temperature 4000 K.
- C. Ceramic, Pulse-Start, Metal-Halide Lamps: Minimum CRI 80, and CCT color temperature 4000 K.

2.7 GENERAL REQUIREMENTS FOR POLES AND SUPPORT COMPONENTS

- A. Structural Characteristics: Comply with AASHTO LTS-4-M.
- B. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.
- C. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.
 - 1. Materials: Shall not cause galvanic action at contact points.
 - 2. Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication unless otherwise indicated.
 - 3. Anchor-Bolt Template: Plywood or steel.

- D. Handhole: Oval-shaped, with minimum clear opening of 2-1/2 by 5 inches (65 by 130 mm), with cover secured by stainless-steel captive screws.
- E. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. Concrete, reinforcement, and formwork are specified in Division 3 Section "Cast-in-Place Concrete."
- F. Power-Installed Screw Foundations: Factory fabricated by pole manufacturer, with structural steel complying with ASTM A 36/A 36M and hot-dip galvanized according to ASTM A 123/A 123M; and with top-plate and mounting bolts to match pole base flange and strength required to support pole, luminaire, and accessories.

PART 3 - EXECUTION

3.1 LUMINAIRE INSTALLATION

- A. Install lamps in each luminaire.
- B. Fasten luminaire to indicated structural supports.
 - 1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.
- C. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.

3.2 BOLLARD LUMINAIRE INSTALLATION

- A. Align units for optimum directional alignment of light distribution.
- B. Install on concrete base with top 4 inches (100 mm) above finished grade or surface at bollard location. Cast conduit into base, and shape base to match shape of bollard base. Finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Division 3 Section "Cast-in-Place Concrete."

3.3 INSTALLATION OF INDIVIDUAL GROUND-MOUNTING LUMINAIRES

- A. Install on concrete base with top 4 inches (100 mm) above finished grade or surface at luminaire location. Cast conduit into base, and finish by troweling and rubbing smooth. Concrete materials, installation, and finishing are specified in Division 3 Section "Cast-in-Place Concrete."

3.4 CORROSION PREVENTION

- A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

- B. Steel Conduits: Comply with Division 16 Section "Raceways and Boxes." In concrete foundations, wrap conduit with 0.010-inch- (0.254-mm-) thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.5 GROUNDING

- A. Ground metal poles and support structures according to Electrical Drawings
 - 1. Install grounding electrode for each pole unless otherwise indicated.
 - 2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.
- B. Ground nonmetallic poles and support structures according to Division 16 Section "Grounding and Bonding."
 - 1. Install grounding electrode for each pole.
 - 2. Install grounding conductor and conductor protector.
 - 3. Ground metallic components of pole accessories and foundations.

END OF SECTION 26 56 00