K A OLDHAM DESIGN, INC.

PROJECT MANUAL FOR

NEWNAN UTILITIES SEWELL ROAD LOBBY

2560.00

70 SEWELL RD
NEWNAN, GA 30263

ARCHITECT:
K A OLDHAM DESIGN, INC.
57 PERRY STREET
NEWNAN, GA 30263
P 770.683.9170

OWNER:
NEWNAN UTILITIES
70 SEWELL RD
NEWNAN, GA 30263
P 770.683.5516

TABLE OF CONTENTS

DOCUMENT 00 11 16 – INVITATION TO BID

DEADLINE: 5/29/26 at 5:00 PM

SCHEDULE:
4/29- Advertising started (4 weeks)
5/11- Mandatory pre-bid meeting on site
5/13- Questions from contractors due
5/20- Answers issued
5/27- Advertising complete
5/29- Receive bids by 5:00 PM
6/5- G.C. selected

An invitation to bid is hereby extended to the qualified bidders for the Newnan Utilities Sewell Road Lobby 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 K A Oldham Design, Inc.

All questions and requests for information (RFI) correspondence shall be in written form addressed only from the General Contractor and directed to K A Oldham Design, Inc.
Emails or fax should be addressed to:

Kip Oldham	Email: koldham@kaod.com
Brittany Atkinson	Email: bevans@kaod.com
	Fax: 770.683.9171
	Office: 770.683.5247

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 or at discretion of the owner. 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 breakdown 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 (2017) 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.

- Contractor must include their liability insurance coverage, payment and performance bond, and bid bond prior to contract.

END OF DOCUMENT

DOCUMENT 00 31 32 – GEOTECHNICAL DATA

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

END OF GEOTECHNICAL DATA

BASE BID SUMMARY FOR: NEWNAN UTILITIES SEWELL ROAD LOBBY (2560.00)

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 Project Signage Allowance	$1000.00		
111	General Clean-up & Disposal			
A	**Subtotal**			
B	**Building Construction**			
201	Demolition			
202	Temporary Customer Service Space			
203	Rough Carpentry, Framing, Ply-wood (including nailers and sheathing)			
204	Cabinetry/Millwork/Countertops			
205	Batt Insulation			
206	Caulking and Sealants			
207	Interior Doors & Frames			
208	Door Finish Hardware			
209	Aluminum Storefront System			
210	Jeld-Wen Windows			
211	TSS Bulletproof Windows, Panels, and Accessories			
212	Lighting Fixtures			
213	Gypsum Wall Board Assemblies			
214	Ceiling Assemblies (2x2) & GWB			
215	Carpet			
216	Wood base			
217	Porcelain tile			
218	Paint			
219	Fire Extinguishers and Accessories (Allow for Type A-B-C 10 lb.)			
220	HVAC – Must use preferred subcontractor: Professional HVAC Consult-ants, Inc, see Division 23 for contact info			
221	Electrical			
222	Misc Finishes			
B	**Subtotal**			
C	**Recap of Construction Costs**			
	General Conditions (101-111)			
	Building Construction (201-222)			
	Overhead & Profit			
	TOTAL BID			

END OF BID SUMMARY FORM

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 04/17/26, 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.

_____

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 April 17, 2026. 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. 2560.00 unless stated on the attached page labeled EXCEPTIONS TO CONTRACT FOR NEWNAN UTILITIES SEWELL ROAD LOBBY.**********

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: Newnan Utilities Sewell Road Lobby
Project location: 70 Sewell Rd, Newnan, GA 30263

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.

Alternate No. 1: (ADD) Provide additive costs associated with replacing all type "A" ceilings in rooms 100, 102, and 105 with ½" Certaineed Silent FX acoustically enhanced GWB.

_____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 2017 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 2017, 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

DOCUMENT 00 73 49 – LABOR STABILIZATION AGREEMENT

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 contracting with the Client has registered with and is participating in a federal work authorization program* [any of the electronic verification (accessible @ www.vis-dhs.com/EmployeeRegistration) of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

The undersigned further agrees that should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to this contract with the Client, contractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to Coweta County at the time the subcontractor(s) is retained to perform such service.

_____
EEV / Basic Pilot Program* User Identification Number

_____
Company Name

_____ _____
Authorized Officer or Agent Date

_____
Title of Authorized Officer or Agent of Contractor

_____
Printed Name of Authorized Officer or Agent of

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE

_____DAY OF _____, 20_____

_____
Notary Public
My Commission Expires:
_____

*As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV / Basic Pilot Program" operated by the U. S. Citizenship and Immigration Services Bureau of the U. S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).
END OF FORM

END OF LABOR STABILIZATION AGREEMENT

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 PROJECT INFORMATION

A. Project: Newnan Utilities Sewell Road Lobby

1. Project Location: 70 Sewell Rd, Newnan, GA 30263

B. Owner: Newnan Utilities

70 Sewell Rd, Newnan, GA 30263

C. Architect: K. A. Oldham Design, Inc.

57 Perry St, Newnan, GA 30263

D. Contractor: TBD

E. The Work consists of removal of existing interior walls and equipment, construction of a temporary workspace, and approximately 1600 SF of new Type VB construction. Sprinklered office space within an existing single-story building. Occupancy Type (B) Business.

F. Owner-Furnished Items: The following products will be furnished by Owner and installed by Contractor as part of the Work:

1. All proxy card security system equipment

2. All I.T., telecommunication and audio/visual equipment.

3. Drive through drawer and communication system are existing and provided by owner

G. Work by Owner:

1. All data and security wiring. Contractor should coordinate with Owner and ensure that all required conduit and boxes are provided for Owner’s portion of work.

H. Work Under Separate Contracts:

1. Building Signage

1.2 WORK RESTRICTIONS

A. Contractor's Use of Premises: During construction, Contractor will have access to the portion of the building affected by the project. Contractor's use of premises is limited

by Owner's right to perform work or employ other contractors on portions of Project. Contractor must comply with all orders of public authorities regarding the safety of persons and property and protection from injury or loss and communicate with owner for additional specific safety requirements.

1. Owner will occupy premises and temporary customer service space will operate during construction. Perform construction only during normal working hours (8 AM to 5 PM Monday thru Friday, other than holidays), unless otherwise agreed to in advance by Owner. Clean up work areas and return to usable condition at the end of each work period.

2. Coordinate dates that temporary workspace will close for construction and full lobby will reopen.

3. Notify owner in advance of disruptions to systems or devices.

B. Contractor must obtain permission from the owner in advance for use of the site for work or storage. Disruptions to installed structures or devices on the site will be reported immediately.

C. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

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. Interior and exterior 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. Speciation 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 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 the 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. Manufacturers' 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 shall 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 all 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 instructions 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 02 41 19 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.

C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed, and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 PREDEMOLITION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

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

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

C. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.

D. Predemolition Photographs or Video: Submit before Work begins.

E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

F. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 QUALITY ASSURANCE

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

1.9 FIELD CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.10 WARRANTY

A. Existing Warranties: No known warranties exist at this time.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Survey of Existing Conditions: Record existing conditions by use of measured drawings, preconstruction photographs, preconstruction videotapes and/or templates.

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs and/or video of conditions that might be misconstrued as damage caused by salvage operations.
2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions specified in Section 01 10 00 "Summary."

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off indicated utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Section 01 50 00 "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 50 00 "Temporary Facilities and Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.

5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:

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

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.

C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings."

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be salvaged or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

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

3.7 CLEANING

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

3.8 SELECTIVE DEMOLITION SCHEDULE

A. No Existing Items Indicated to Be Removed and Salvaged at this time.

END OF SECTION 02 41 19

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: AWPA C2 lumber and AWPA C9 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 Waterporrfing

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 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 INTERIOR STANDING AND RUNNING TRIM

A. Interior Softwood Lumber Trim: eastern white.

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: RB-620; see interiors.
4. Chair Rail: RB-1001; see interiors.
5. Wall Molding: Rb-9898; see interiors.

2.3 PANELING

A. Hardwood Veneer Plywood Paneling: Manufacturer's stock panels complying with HPVA HP-1.

1. Face Veneer Species: Select grade rift-cut white oak
2. Veneer Matching: Selected for similar color and grain
3. Thickness: 1/4 inch.

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.

F. Select and arrange paneling for best match of adjacent units. Install with uniform tight joints.

END OF SECTION 06 20 00

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. 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, 5 inches long. Basis of Design is Amerock Highland Ridge; 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: Select grade, made from white oak, rift sawn.

D. Interior Ornamental Work for Transparent Finish: Select grade, made from white oak, rift sawn.

E. Wood Cabinets for Transparent Finish: Select 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: White oak, rift cut.
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. Solid-Surfacing Material Countertops: Custom grade.

1. Solid-Surfacing Material Thickness: 2cm
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 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 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 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Samples for 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 Opaque Finish:

1. Interior Solid-Core Doors: Custom grade, five-ply, structural composite lumber cores.

a. Faces: Grade A rotary-cut select white birch.

2.3 LOUVERS AND LIGHT FRAMES

A. Light Frames: Wood beads of same species as door faces.

1. At fire-rated doors provide wood-veneered beads 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 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 14 23 – CLAD WOOD DOORS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Wood-framed aluminum-clad hinged door.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance Requirements:

1. Comply with requirements of NAFS.

1.3 SUBMITTALS

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

B. Shop Drawings: Showing methods of installation, plans, sections, elevations and details of walls, specified loads, flashings, vents, sealants, and interfaces with all materials not supplied by the patio door manufacturer, and identification of proposed component parts and finishes.

C. Samples: Selection and verification samples for finishes, colors and textures. Submit two complete sample sets of each type of material required.

D. Certificates: Signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.

E. Test and Evaluation Reports: Showing compliance with specified performance characteristics and physical properties.

F. Manufacturer's Instructions: Manufacturer installation, storage, and other instructions.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Member in good standing of the Insulating Glass Certification Council (IGCC).
2. Hallmark Certified Manufacturer and member in good standing of the Window and Door Manufacturers Association (WDMA).
3. Member in good standing of U.S. Green Building Council.
4. U.S. ENERGY STAR Partner.
5. Capable of demonstrating an extended history of window and door design, production and innovation.

B. Installer Qualifications:

1. Minimum five years' experience in the commercial installation of products required for the Project.
2. Experience on at least five projects of similar size, type and complexity as the Project.
3. An entity utilizing workers competent in techniques required by manufacturer for product types and applications indicated.

1.5 DELIVERY, STORAGE AND HANDLING

A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Deliver materials to Project in manufacturer's original unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials and accessories protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by manufacturer off ground, under cover and not exposed to weather and construction activities.

1.6 WARRANTY

A. Special Warranty: Manufacturer's transferrable, non-prorated limited warranty.

1. Warranty Period, Glass: 20 years.
2. Warranty Period, Non-Glass Parts: 10 years.

B. Special Warranty: Installer's standard form in which installer agrees to repair or replace clad wood patio doors that fail due to poor workmanship or faulty installation within the specified warranty period.

1. Warranty Period: Two(2) years from date of Substantial Completion.

PART 2 PRODUCT

2.1 CLAD WOOD DOORS

A. General: Provide wood doors complying with the performance requirements indicated and tested according to NAFS.

B. Basis-of-Design Product: Subject to compliance with requirements provide Andersen Corporation: Andersen E-Series patio doors.

C. Substitution Limitations: No substitutions

2.2 MATERIALS

A. Construction:

1. Cladding: Extruded aluminum, minimum thickness 0.050 inch (1.27 mm).
2. Stiles and Rails: Preservative treated (WDMA I.S.4) laminated veneer lumber (LVL) with wood veneer, kiln dried and suitable for stain or painted finish on interior.
3. Interior Exposed Frame: Preservative treated (WDMA I.S.4) lumber, kiln dried and suitable for stain or painted finish.

B. Wood Species: Pine

C. Interior Finish:

1. Painted: Factory-applied before assembly, [White] [Canvas] [Sandtone] [Terratone] [Forest Green] [Dark Bronze] [Black] [Cocoa Bean] [Red Rock] [Prairie Grass] [Dove Gray] color as selected and approved by Architect.

D. Exterior Finish:

1. Painted Frame: Factory-applied baked-on silicone polyester enamel, in compliance with AAMA 2605 , color as selected from manufacturer's standard colors of no less than 50 options, custom color as selected and approved by Architect.
2. Painted Panel: Factory-applied baked-on silicone polyester enamel, in compliance with AAMA 2605 , color as selected from manufacturer's standard colors of no less than 50 options, custom color as selected and approved by Architect.

2.3 Outswing hinged commercial door.

A. Patio Door Type and Performance Requirements: Hinged commercial door.

1. Outswing Commercial Single-Panel Hinged Patio Door, Performance Class and Grade, Non-Impact-Resistant: LC-PG60 LW (40 X 94 inches).
2. Outswing Commercial Double-Panel Hinged Patio Door, Performance Class and Grade, Non-Impact-Resistant: LC-PG50 LW (79 X 94 inches).

B. Air Infiltration Requirements:

1. Air Infiltration Rate: < 0.2 cfm/sf^2.

C. Environmental Certifications:

1. ENERGY STAR performance requirements.
2. Indoor air quality performance.

D. Hinged Patio Door Weatherstrip Type and Material:

1. Frame: Urethane foam with Q-Lon skin.
2. Panel: Urethane foam Q-Lon skin.

E. Installation Flange: Extruded aluminum.

F. Rail and Stile Profile:

1. Commercial: 12" Bottom Rail.
2. Commercial: 6 1/2" Rails and Stiles.

G. Hardware:

1. Patio Door Hinge Type and Finish: Heavy-duty, commercial grade, ORB.
2. Hinged Patio Door Concealed Panic System: Clear opening, lockable at head and sill, ORB
3. Closer: LCN 4031 HCUSH, Dark Bronze
4. Kickplates: 10", ORB

H. Sills:

1. Type, Jamb Depth and Color: Outswing, low-threshold (ADA-compliant), 6-9/16 inches, aluminum with polyurethane thermal barrier, with dark bronze anodized finish.

2.4 NON-IMPACT-RESISTANT GLAZING

A. Thermal Transmission (U-Factor), NFRC 100:

1. Outswing: 0.35 U-Factor value.

B. Solar Heat Gain Coefficient (SHGC), NFRC 200:

1. Outswing: 0.30 SHGC value.

C. Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC), ASTM E90:

1. Single-Panel Outswing: 30 STC/26 IOTC.
2. Two-Panel Outswing: 29 STC/ 25 OITC.

D. Glass Units: Provide insulating glass units certified through Insulating Glass Certification Council as conforming to the requirements of IGCC and ASTM E2190, Insulating Glass Manufacturers Alliance of Canada (IGMAC) conforming to the requirements of Canadian General Standards Board CAN/CGSB 12.8.

1. Manufacturer Designation: Andersen Low-E4 SmartSun Glass.
2. Glazing Configuration: Dual-pane.
3. Tint: None.
4. Seal and Spacer Type: Dual sealed insulating glass units with polyisobutylene primary seal, silicone secondary seal and stainless steel spacers.
5. Glass Spacer Color: Stainless Steel
6. Glass Type: Fully tempered glass, ASTM C1048.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that all substrate conditions are suitable for installation in compliance with manufacturer's recommendations.

B. Do not begin installation until substrates have been properly prepared and any conditions not in compliance with manufacturer's recommendations have been corrected.

3.2 INSTALLATION

A. General: Comply with manufacturer's product recommendations, including but not limited to the Andersen Unit Installation Guide, installation information in product literature and on product packaging. Comply with Drawings and Shop Drawings for installing patio doors, hardware, accessories, and other components.

B. Install patio doors plumb, level and square. Anchor patio doors securely to structure in correct orientation to flashing and adjacent construction as indicated. Comply with product installation instructions for proper flashing integration into wall system. Install patio doors so as to drain water penetration to the exterior.

C. Adjust sliding patio door, insect screens, hardware and accessories as applicable for correct fit. Adjust weatherstrip for smooth operation and weather-tight closure.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: If requested by Owner, provide manufacturer's field service consisting of product use recommendations and periodic site visits for observation of product installation in accordance with manufacturer's recommendations.

1. Site Visits: Window Order review, pre-installation, and post-installation.

B. Field Testing: Provide field testing of installed units.

1. Test units in compliance with AAMA 502.
2. Use test equipment calibrated according to ASTM E1105.

3.4 CLEANING

A. Refer to manufacturer for guidance on timing for when best to remove protective films and non-permanent labels after installation.

B. Remove excess sealant, soiling, dirt and other substances. Clean patio door frame and glass surfaces. Avoid damaging coatings and finishes.

C. Touch-up, repair or replace glass or other patio door components broken, scratched or damaged during construction prior to Substantial Completion.

D. Remove and lawfully dispose of construction debris from Project site.

3.5 PROTECTION

A. Protect installed patio doors and finish surfaces from damage during construction until completion of Project and acceptance by Owner.

(END OF SECTION 08 14 23 – CLAD WOOD DOORS)

SECTION 08 52 00 - WOOD WINDOWS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data, Shop Drawings, and color Samples.

1. Provide AAMA- or WDMA-certified wood windows with an attached label.

PART 2 - PRODUCTS

2.1 WOOD WINDOWS

A. Products:

1. Jeld-Wen Custom Wood Fixed Windows

B. Provide [prime-painted] wood windows.

C. Window Types: The following types, as indicated on Drawings:

1. Fixed.

D. Performance Requirements: AAMA/WDMA/CSA 101/I.S.2/A440.

1. Performance Class: LC.

E. Trim: Provide indicated trim, matching material and finish of frame members.

F. Equip units with removable grilles as indicated, attach to inside face of each lite.

G. Glaze units with clear sealed insulating glass, complying with Division 08 Section "Glazing."

PART 3 - EXECUTION

3.1 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 glass and wood surfaces immediately after installing windows. Remove nonpermanent labels from glass surfaces.

END OF SECTION 08 52 00

SECTION 08 52 13 – METAL-CLAD WOOD WINDOWS

PART 1 GENERAL

1.1 SUMMARY

A. Section: Wood-framed, aluminum-clad windows of the following types: double-hung, double-hung fixed picture units.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Meetings: Conduct pre-installation meeting to clarify Project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance Requirements:

1. Comply with the requirements of NAFS.
2. Wind Loads
    a. Ultimate Wind Speed……..118MPH
    b. Kd Factor ……..0.85
    c. Exposure Category ……... C
    d. Enclosure Classification … Enclosed Building
    e. Gust (G) factor …… 0.85
3. Additional data on Sheet S0.01 – General Notes

1.4 SUBMITTALS

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

B. Shop Drawings: Showing methods of installation, plans, sections, elevations, and details of walls, specified loads, flashings, vents, sealants, and interfaces with all materials not supplied by the window manufacturer, and identification of proposed component parts and finishes.

C. Samples: Selection and verification samples for finishes, colors, and textures. Submit two complete sample sets of each type of material required.

D. Certificates: Signed by the manufacturer certifying materials comply with specified performance characteristics, criteria, and physical requirements.

E. Test and Evaluation Reports: Showing compliance with specified performance characteristics and physical properties.

F. Manufacturer Instructions: Manufacturer installation, storage, and other instructions.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Member in good standing of the Insulating Glass Certification Council (IGCC).
2. Hallmark Certified Manufacturer and member in good standing of the Window and Door Manufacturers Association (WDMA).
3. Member in good standing of the U.S. Green Building Council.
4. U.S. EPA ENERGY STAR Partner.
5. Capable of demonstrating an extended history of window and door design, production, and innovation.

B. Installer Qualifications:

1. Minimum five years' experience in the commercial installation of products required for the Project.
2. Experience on at least five projects of similar size, type, and complexity as the Project.
3. An entity utilizing workers competent in techniques required by the manufacturer for product types and applications indicated.

1.6 DELIVERY, STORAGE AND HANDLING

A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Deliver materials to Project in manufacturer's original unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials and accessories protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by manufacturer off ground, under cover and not exposed to weather and construction activities.

1.7 WARRANTY

A. Special Warranty: Manufacturer's transferrable, non-prorated limited warranty.

1. Warranty Period, Glass: 20 years.
2. Warranty Period, Non-Glass Parts: 10 years.

B. Special Warranty: Installer's standard form in which installer agrees to repair or replace windows that fail due to poor workmanship or faulty installation within the specified warranty period.

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

PART 2 PRODUCT

2.1 METAL-CLAD WOOD WINDOWS

A. General: Provide windows complying with the performance requirements indicated and tested according to NAFS.

B. Basis-of-Design Product: Subject to compliance with requirements provide Andersen Corporation: Andersen E-Series windows.

C. Substitution Limitations: No substitutions.

2.2 MATERIALS

A. Construction:

1. Cladding: Extruded aluminum, minimum thickness 0.050 inch (1.27 mm).
2. Frame: Preservative-treated laminated veneer lumber.
3. Interior Exposed Frame: Preservative-treated solid lumber, kiln dried and suitable for stain or painted finish.
4. Sash: Preservative-treated solid lumber, kiln dried and suitable for stain or painted finish.

B. Wood Species: Pine

C. Interior Finish:

D. Painted: Factory-applied before assembly – color to match existing windows

E. Exterior Finish:

1. Painted Frame: Factory-applied baked-on silicone polyester enamel, in compliance with [AAMA 2605] – color to match existing windows
2. Painted Sash: Factory-applied baked-on silicone polyester enamel, in compliance with [AAMA 2605] – color to match existing windows

2.3 WINDOWS

A. Window Type and Performance Requirements: Double-Hung Full-Frame Picture Window, as indicated on Drawings – Window Type 1 and Type 2 and Double-Hung Full-Frame Window Type 3, as indicated on Drawings.

1. Double-Hung Full-Frame and Double-Hung Full-Frame Picture Window Performance Class LC and Grade, Non-Impact-Resistant: PG50.

B. Air Infiltration Requirements:

1. Air Infiltration Rate: < 0.2 cfm/sf^2.

C. Environmental Certifications:

1. ENERGY STAR performance requirements.
2. Indoor air quality performance.

D. Weatherstrip:

1. Type and Material for Hung or Gliding: Three fins and pile, polypropylene.

E. Installation Flange Type: Extruded vinyl.

F. Hardware:

1. Sash Lock Color: White
2. Balancer Type and Material: Spring-loaded block and tackle, AAMA 902 Class 5 spiral, galvanized steel.
3. Jamb Liner:
    a. Type and Material: Concealed, rigid vinyl.
    b. Color: White.
    c. Interior Inserts: Wood-veneered vinyl, species to match window.
    d. Exterior Inserts: Aluminum, color to match window.

G. Divided Lights:

1. Full Divided Light: Permanent exterior and interior attachment, spacer between glass panes.

    a. Exterior Style: Chamfer.
    b. Interior Style: Ovolo
    c. Width: 1-1/8 inches (29mm).
    d. Pattern: As shown in Drawings.
    e. Spacer Color: Stainless Steel.
    f. Exterior Color: Match the selected window color by the architect.
    g. Interior Finish: Match the selected window color by the architect.

H. Insect Screens:

1. Type: Conventional full screen.

    a. Frame Material: Aluminum.
    b. Painted Finish and Color: Factory-applied baked-on silicone polyester enamel, Match window frame. Color as selected by the Architect from manufacturer's available exterior colors.
    c. Insect Screen Material: Aluminum mesh.

2.4 NON-IMPACT-RESISTANT GLAZING

A. Thermal Transmission (U-Factor), NFRC 100:

1. Double-Hung: 0.33 with grilles.
2. Double-Hung Picture: 0.33 with grilles.

B. Solar Heat Gain Coefficient (SHGC), NFRC 200:

1. Double-Hung: 0.18 with grilles.
2. Double-Hung Picture: 0.18 with grilles.

C. Visible Light Transmittance (VLT), NFRC 200:

1. Double-Hung: 0.36 with grilles.
2. Double-Hung Picture: 0.36 with grilles.

D. Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC), ASTM E90:

1. Double-Hung: 28 STC/ 24 OITC.

E. Glass Units: Provide insulating glass units certified through Insulating Glass Certification Council as conforming to the requirements of IGCC and ASTM E2190. Insulating Glass Manufacturers Alliance of Canada (IGMAC) conforming to the requirements of Canadian General Standards Board CAN/CGSB 12.8.

1. Manufacturer Designation: Andersen Low-E4 SmartSun Glass.
2. Glazing Configuration: Dual-pane.
3. Tint: None.
4. Seal and Spacer Type: Dual sealed insulating glass units with polyisobutylene primary seal, silicone secondary seal and stainless steel spacers.
5. Glass Spacer Color: Stainless Steel
6. Glass Type: Annealed glass, ASTM C1036 and Fully tempered glass, ASTM C1048 – where indicated on the drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that all substrate conditions are suitable for installation in compliance with manufacturer's recommendations.

B. Do not begin installation until substrates have been properly prepared and any conditions not in compliance with manufacturer's recommendations have been corrected.

3.2 INSTALLATION

A. General: Comply with manufacturer's product recommendations, including but not limited to the Andersen Unit Installation Guide, installation information in product literature and on product packaging. Comply with Drawings and Shop Drawings for installing windows, hardware, accessories, and other components.

B. Install windows plumb, level and square. Anchor windows securely to structure in correct orientation to flashing and adjacent construction as indicated. Comply with product installation instructions for proper flashing integration into wall system. Install windows so as to drain water penetration to the exterior.

C. Adjust sashes, insect screens, ventilators, hardware and accessories as applicable for correct fit. Adjust weatherstrip for smooth operation and weather-tight closure.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: If requested by Owner, provide manufacturer's field service consisting of product use recommendations and periodic site visits for observation of product installation in accordance with manufacturer's recommendations.

    1. Site Visits: Window Order review, pre-installation, and post-installation.

B. Field Testing: Provide field testing of installed units.

    1. Test units in compliance with AAMA 502.
    2. Use test equipment calibrated according to ASTM E1105.

3.4 CLEANING

A. Refer to manufacturer for guidance on timing for when best to remove protective films and non-permanent labels after installation.

B. Remove excess sealant, soiling, dirt and other substances. Clean window frame and glass surfaces. Avoid damaging coatings and finishes.

C. Touch-up, repair or replace glass or other window components broken, scratched or damaged during construction prior to Substantial Completion.

D. Remove and lawfully dispose of construction debris from Project site.

3.5 PROTECTION

A. Protect installed windows and finish surfaces from damage during construction until completion of Project and acceptance by Owner.

(END OF SECTION 08 52 13 – METAL-CLAD WOOD WINDOWS)

SECTION 08 56 53 – TSS BULLET RESISTANT SQUARE STYLE WINDOW SYSTEM

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Bullet resistant square style window.

1.2 REFERENCES

A. Underwriters Laboratory UL 752-Standard for Bullet Resisting Equipment.

B. ASTM E119-98- Standard Test Methods for Fire Tests of Building Construction and Materials.

C. ASTM B 209/B 209M- Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate.

D. ASTM A 666-Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar..

1.3 ACTION SUBMITTALS

A. Product Data: For each type of framing and glass including manufacturer recommended installation instructions.

B. Shop Drawings: Include plans, elevations, sections, details, attachment to other work.

C. Samples: For each exposed finish.

1.4 INFORMATION SUBMITTALS

A. Product Test Reports: Indicating compliance with requirements

B. Warranty: Sample of finish warranty

1.5 CLOSEOUT SUBMITTALS

A. Refer to Section 01 78 00 Closeout Submittals.

B. Maintenance data.

1.6 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 01 60 00 Product Requirements.

B. Deliver materials to the project site with the manufacturer's UL Listed Labels intact and legible. Handle the materials with care to prevent damage. Store materials inside and

under cover, stack flat and off floor. Project conditions (temperature, humidity, and ventilation) shall be within the maximum limit recommendations provided by manufacturer. Do not install products stored in conditions outside manufacturer's recommended limits.

1.7 WARRANTY

A. Workmanship Warranty: All materials shall be warranted against defects for a period of 1 year for the date of receipt at the project site. Provide certificates of manufacturer's standard limited warranty with closeout documents.

B. Finish Warranty: Manufacturer's warranty against deterioration of factory finishes for the period of 5 years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

A. Basis of Design:

1. Subject to compliance with requirements, provide products by the following:

a. Total Security Solutions, Inc., 935 Garden Lane, Fowlerville, MI 48836, 866 734-6277. Attn: Sales Department, sales@tssbulletproof.com. Web: www.tssbulletproof.com.

2. Subject to compliance with requirements, manufacturers of products of equivalent design may be acceptable if approved in accordance with Section 01 25 00 Substitution Procedures.

B. Design Performance:

1. Through the design, manufacturing techniques and material application the TSS Bullet Resistant Window System shall be of the "non-ricochet" type. This assembly shall provide multiple transaction positions utilizing the window configuration. This design shall employ windows in teller line ballistic glazing to complete the design.

2. Each transaction position may have a stainless steel dip tray as shown on the drawings.

3. All vision panels shall be cut to size with all exposed edges polished.

4. Necessary holes shall be pre drilled and tapped where required.

5. Stainless Steel assembly screws and acrylic spacers shall be provided.

6. Frame and channel shall be provided by manufacturer.

7. Anchoring screws shall be provided by manufacturer.

8. Provide anchor screws as required to install equipment.

C. Field alterations to the construction of the assembly fabricated under the acceptable standards are not allowed unless approved in writing by the manufacturer and Architect.

D. Standard manufacturing tolerances +/- 1/16" shall be maintained.

E. Materials shall meet or exceed UL 752 requirements.

2.2 FABRICATION

A. Aluminum sections to be manufactured in accordance with ASTM B209, Extruded aluminum alloy 6063 T5 Anodized to match the existing décor and be free of sharp edges or burrs when in place.

B. Glazing Channel: U-Channel specifically designed for securing transparencies tightly in place. Angles and stops are only acceptable for top attachment. All exposed aluminum edges shall be clean cut and have no burrs. Exposed corners shall be rounded and sanded.

C. Tolerances: All joints and connections shall be tight, providing hairline joints and true alignment of adjacent members

2.3 FRAME FINISH

A. Factory-applied finish:

1. [Color Anodic Finish]: Architectural Class I, color coating AA-M10C22A42/A44 Mechanical Finish Chemical Finish: etched, medium matte; 0.70 mils minimum complying with AAMA 611 "Voluntary Specification for Anodized Architectural Aluminum".

a. Color: Match interior window frame color in finish schedule.

B. Cap the bottom of glazing with the corresponding finish material selected for frame.

2.4 GLAZING

A. Glazing shall be as shown on the drawings.

1. Bullet Resistant Level 2
1 3/8" AR Coated Acrylic

B. Acrylic: All acrylic pieces shall meet or exceed UL 752 testing for ballistic integrity. All edges of acrylic shall be filed, sanded after cutting to remove rough edges and then polished until “water clear” transparent. All through holes for fasteners shall be 3/8” in diameter and be drilled clean. Chipped edges at through-hole exit points are not acceptable. All acrylic pieces shall be supported in the proper glazing channel designed for this purpose (see aluminum, Section D).

C. Glazing gaskets:

1. Interior: Closed cell neoprene.

2. Exterior: Solid neoprene.

2.5 ACCESSORIES

A. Anchors: Fully concealed manufacturer recommended.

B. Mounting plates and connecting clips shall be fabricated from 1/8" thick clear polycarbonate.

C. Cash Tray:

1. Location: Recessed.

2. Finish: Brushed Stainless Steel #4 finish.

3. Material: 18 gauge stainless steel.

4. Dimensions: 16" x 8" from the outside edge of flanges with a clear opening.

D. Round hole & backer voice port

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning installation, verify that all supports have been installed as required by the Contract Documents and architectural drawings, and Shop Drawings have been approved.

B. Notify Architect of any unsatisfactory preparation that is responsibility of others.

C. Clean and prepare all surfaces per manufacturers recommendations as required for achieving the best results for the substrate under the project conditions.

D. Verify field dimensions of openings prior to fabrication of framing.

E. Coordinate structural requirements to ensure proper attachment and support.

F. Do not begin installation of material until all unsatisfactory conditions have been resolved and approved by Architect.

3.2 INSTALLATION

A. Do not begin installation until openings have been verified and surfaces properly prepared in accordance with Drawings.

B. Install in accordance with manufacturer's instructions and UL 752. Set all equipment plumb.

C. All products shall be installed per installation instructions provided by manufacturer.

D. Security window units shall arrive on site completely pre-fabricated to field dimensions approved by Shop Drawings.

E. Install framing and secure to structure in accordance with manufacturer's recommendations and approved shop drawings.

F. Provide required support and securely fasten and set windows plumb, square, and level without twist or bow.

G. Apply sealant in accordance with window and sealant manufacturer's recommendations as indicated in installation instructions.

H. Remove excess sealant and leave exposed surfaces clean and smooth

3.3 PROTECTION

A. Clean and protect windows from damage during ongoing construction operations. If damage occurs, remove and replace as required to provide windows in their original, undamaged condition.

B. Inspection and Cleaning: Verify installation is complete and complies with manufacturer's requirements.

C. Provide final cleaning of product and accessories, removing excess sealant, labels and protective covers.

D. Touch-up, repair or replace damaged products prior to Substantial Completion.

END OF SECTION 08 56 53

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. 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

C. 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.

D. Allowances

1. Refer to Division 1 for allowance amount and procedures.

E. 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.

Item:	Manufacturer:	Approved:
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 ¾" 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 ¼" 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 ¼" 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 Plate s 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

Code	Name
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
SC	Schlage
KM	KMT Systems
PE	Pemko

Option List

Code	Description
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 Indictor 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

Code	Description
AL	Aluminum
130	RiteCoat Painted - Satin Aluminum
626	Satin Chrome
628	Satin Aluminum, Clear Anodized
630	Satin Stainless Steel
689	Aluminum Painted
613	Oil Rubbed Bronze
GREY	Grey
BLACK	Black
US26D	Chromium Plated, Dull
US32D	Stainless Steel, Dull

A. All proxy card security system equipment to be furnished by Owner and installed by Contractor as part of the work

1. Proxy card security system provider:

KMT Systems

2004 Henry Parkway Connector, McDonough, GA 30253

Phone: (770) 284-3144

Contact: Carter West

Hardware Sets

Refer to door schedule on sheet A6.01 for hardware set locations.

SET #01

Office Swing Doors:

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Lockset	ND50PD RHO 626	626	SC
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Wall Bumper	1270CV	626	TR
3	Door Silencers	1229A	GREY	TR

SET #02

Interior Key Card Access Doors:

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Power Transfer	EPT-12C		PR
1	Elec. Lock-Fail Safe	ND96PDEL RHO	626	SC
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 Owner		KM
1	Door Position Switch	By Owner		KM
1	Card Reader	By Owner		KM

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 #03

Office Pocket Doors:

1	Pocket Door Track Set	PD75		BE
1	Pocket Door Lockset	1422	626	PE

SET #04

Interior Passage Doors:

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Passage Set	ND10S RHO	626	SC
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 #05

Key Card Access Entry Door:

3	Hinges	FBB179 4 1/2 X 4 1/2	US26D	ST
1	Elec. Lock-Fail Safe	L/LV9492EL RHO	613	SC
1	Door Closer	CLD-4551 EDA SN	689	SD
1	Kick Plate	K0050 8" x 34" B4E CSK	630	TR
1	Floor Stop	1211	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 Owner		KM
1	Door Position Switch	By Owner		KM
1	Card Reader	By Owner		KM

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 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 30 00 - TILING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data for each type of product indicated and Samples for tile and grout.

B. Obtain tile of each type and color or finish from same production run for each contiguous area

C. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

PART 2 - PRODUCTS

2.1 CERAMIC TILE

A. Ceramic tile that complies with Standard grade requirements in ANSI A137.1, "Specifications for Ceramic Tile."

B. Tile Type: Glazed, porcelain floor/wall tile.

1. Products:

a. Daltile Haddonstone colorbody porcelain floor tile.

2. Face Size: 24 by 24 inches
3. Thickness: 5/16 inch (0.00 mm).
4. Face: Plain with square or cushion edges.
5. Finish: Matte.
6. Color and Pattern: Dawn HS05
7. Grout Color: Mapei 5105 Driftwood

2.2 INSTALLATION MATERIALS

A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325, 1/2 inch (12.7 mm) thick.

B. Fiber-Cement Underlayment: ASTM C 1288, 1/2 inch (12.7 mm) thick.

C. VOC Limit for Adhesives and Fluid-Applied Waterproofing Membranes: 65 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. Waterproofing Membranes for Thin-Set Installations: ANSI A118.10, unreinforced liquid-latex or elastomeric polymer product.

1. Products:

    a. RedGard Waterproofing and Crack Prevention Membrane

E. Setting and Grouting Materials: Comply with material standards in ANSI's "Specifications for the Installation of Ceramic Tile" that apply to materials and methods indicated.

1. Thin-Set Mortar Type: Latex-portland cement.

    a. Products:

        1) Mapei

2. Grout Type: Epoxy unless otherwise indicated.

    a. Products:

        1) Mapei Ultracolor Plus

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For installations indicated below, follow procedures in ANSI's "Specifications for the Installation of Ceramic Tile" for providing 95 percent mortar coverage.
    a. Tile floors in wet areas.
    b. Tile floors composed of tiles 8 by 8 inches (200 by 200 mm) or larger.

B. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

C. Lay tile in grid pattern unless otherwise indicated. Align joints where adjoining tiles on floor, base, walls, and trim are the same size.

D. Install cementitious backer units and treat joints according to ANSI A108.11.

E. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot (1:50) toward drains.

F. Install waterproofing to comply with ANSI A108.13.

G. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

H. Interior Floor Tile Installation Method(s):

1. Over Waterproof Membranes on Concrete Subfloors: TCA F122 (thin-set mortar).

I. Interior Wall Tile Installation Method(s):

1. Over Wood Studs or Furring: TCA W245 with organic adhesive (organic adhesive on glass-mat, water-resistant backer board).
2. Bathtub/Shower Wall Installations, Wood Studs or Furring: TCA B419 with organic adhesive (organic adhesive on glass-mat, water-resistant backer board).

END OF SECTION 09 30 00

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 Tegular

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 68 13 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes modular, tufted carpet tile.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include manufacturer's written specifications and lab documents for any physical testing.
2. Include manufacturer's written installation recommendations for each type of substrate as specified in carpet manufacturer's installation guidelines and/or Carpet & Rug Institute Installation Standard 2011, where applicable.
3. Include carpet maintenance recommendations as outlined by the carpet manufacturer.
4. Carpet Manufacturer - provide a product EPD (Environmental Product Declaration) shall also submit a plan for recycling the specified carpet at the end of the useful life of the carpet.
5. Laboratory Test Reports: For flooring products, indicating compliance with requirements for low-emitting materials.

B. Shop Drawings: For carpet tile installation, plans showing the following:

1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
2. Carpet tile type, color, and dye lot.
3. Type of subfloor.
4. Type of installation.
5. Pattern of installation.
6. Pattern type, location, and direction.
7. Installation method: Brick
8. Type, color, and location of insets and borders.
9. Type, color, and location of edge, transition, and other accessory strips.
10. Transition details to other flooring materials.

C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

1. Carpet Tile: Full-size Sample.
2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch- (300-mm-) long Samples.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:

1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 square yards.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or can demonstrate compliance with its certification program requirements.

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with carpet manufacturer's installation recommendations and the Carpet & Rug Institute Installation Standard 104 where applicable.

1.8 FIELD CONDITIONS

A. Comply with carpet manufacturer's installation recommendations and the Carpet & Rug Institute Installation Standard 104 for temperature, humidity, and ventilation limitations.

B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and ambient temperature and

humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.

C. HVAC system should be operational and running prior to carpet installation and remain running after carpet installation.

D. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to allow bond between adhesive and concrete. Concrete slabs should have moisture and pH readings that are within the specified tolerance of the adhesive to be used.

E. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.9 WARRANTY

A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, the following:

a. More than 10 percent face fiber loss or edge raveling.
b. Dimensional instability.
c. Excess static discharge.
d. Loss of tuft-bind strength.
e. Delamination.
f. Where face fiber is 100 percent solution dyed, inability to remove acid based stains.
g. Lack of colorfastness to atmospheric contaminants.
h. Carpet must be manufactured and warranted by same manufacturer.

3. Warranty Period: 15 years from Substantial Completion.

PART 2 - PRODUCTS

2.1 CARPET TILE

A. Source Limitations:

1. Single Source Responsibility: Provide products that have components manufactured by a single source. Fiber and backing, as well as final carpet product, should be manufactured and warranted by same company.
2. Commitment to sustainability: Carpet manufacturer must practice environmental responsibility through programs of source reduction, recycling, reuse, and conservation. Manufacturer to provide a product EPD (Environmental Product Declaration)

B. Fiber Modification Ratio: Less than 2.2

C. Fiber: Premium 100% Recycled Content Nylon Fiber or Post Consumer Content Nylon

D. Dye Method: 100% Solution-Dyed

E. Traffic Classification: Severe or Heavy

F. Size: 25 cm x 1 m plank, 50 cm x 1 m plank, 50 cm x 50 cm square, 1 m x 1 m square

G. Performance Characteristics:
1. Critical Radiant Flux Classification, Flooring Radiant Panel ASTM E 648: Not less than 0.45 W/sq. cm.
2. Smoke Density: Less than 450 per ASTM E662.
3. Methanamine Pill Test CPSC FF1-70: Must pass pill test.
4. Tuft Bind: Not less than 8 lbf (36 N) according to ASTM D 1335.
5. Delamination: Not less than 3.5 lbf/in. (0.6 N/mm) according to ASTM D 3936.
6. Dimensional Tolerance: Within 1/32 inch (0.8 mm) of specified size dimensions, as determined by physical measurement.
7. Dimensional Stability: 0.0119 percent or less according to ISO 2551 (Aachen Test).
8. Colorfastness to Crocking: Not less than 4, wet and dry, according to AATCC 129 and AATCC 164.
9. Colorfastness to Light: Not less than 4 after 60 AFU (AATCC fading units) according to AATCC 16, Option E.
10. Electrostatic Propensity: Less than 3.5 kV according to AATCC 134.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

B. Trowelable Adhesives: Water-resistant, mildew-resistant, nonstaining, premium grade, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation and moisture content.

C. Non-Trowelable Adhesive: Water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation where slab moisture does not exceed 95 percent per ASTM F 2170 or 10 lbs (4.56 kg) per ASTM F 1869. Each carpet tile must be adhered to the subfloor.

D. Metal Edge/Transition Strips: Extruded aluminum with mill finish of profile and of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance.

B. Examine carpet tile for type, color, pattern, and potential defects prior to installation. See manufacturer's requirements for substrate conditions and ambient conditions.

C. Concrete Slabs: Verify that finishes comply with requirements of manufacturer and that surfaces are free of cracks, ridges, depressions, scale, and foreign deposits.
   1. Where previous surface treatments are unknown, or where other concerns exist as to the ability of the adhesive to bond to the substrate, a 24 hour bond test is recommended.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with Carpet & Rug Institute Installation Standard 104 and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.

B. Use trowelable leveling and patching compounds that contain a cementitious base with a latex additive, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch (3 mm) wide or wider, and protrusions more than 1/32 inch (0.8 mm) unless more stringent requirements are required by manufacturer's written instructions.

C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.

D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

A. General: Comply with Carpet & Rug Institute Installation Standard 104 "Modular Carpet" and with carpet tile manufacturer's written installation instructions.

B. Installation Method: Follow installation guidelines per manufacturer.

C. Maintain dye-lot integrity. Utilize mergeable dye lot products whenever possible. Do not mix dye lots in same area unless the specific carpet style in manufactured as a mergeable dye lot product.

D. Maintain pile-direction patterns recommended in writing by carpet tile manufacturer.

E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

F. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.

H. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after installing carpet tile:

1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
2. Remove yarns that protrude from carpet tile surface.
3. Vacuum carpet tile using commercial machine with face-beater element.

B. Protect installed carpet tile to comply with Carpet & Rug Institute Installation Standard, "Protecting Indoor Installations."

C. When construction or move-in activities will continue where new carpet is installed, provide non-staining building material paper to protect carpet. Do not use plastic sheeting as it can trap moisture, and self-sticking plastic sheeting can transfer adhesive residue to carpet that will attract soil.

D. When heavy objects are moved over carpet within 24 hours of installation, use plywood over carpet to prevent buckling and wrinkling.

E. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 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. Semi gloss 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: Eggshell Acrylic Latex: Two coats over primer/sealer: MPI INT 9.2A.
2. WALLS: Eggshell Acrylic Latex: Two coats over primer/sealer: MPI INT 9.2A.

END OF SECTION 09 99 10

SECTION 10 26 41 - TSS BR FIBERGLASS PANELS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. TSS Total Armor Bullet Resistant Fiberglass.

1.2 REFERENCES

A. Underwriters Laboratory UL 752-Standard for Bullet Resisting Equipment.

B. ASTM C 1172 - Standard Specification for Laminated Architectural Flat Glass.

C. ASTM E119-98-Standard Test Methods for Fire Tests of Building Construction and Materials,

D. MIL-P-46593A-Numerical simulation of ballistic impact on composite laminates,

E. MIL-STD-622F-V50 Ballistic Test for Armor.

1.3 ACTION SUBMITTALS

A. Refer to Section [01 33 00 Submittal Procedures] [Insert section number and title].

B. Product Data: Including manufacturer recommended installation instructions.

C. Shop Drawings: Include plans, elevations, sections, details, attachment to other work.

D. Samples: For each exposed glazing type.

1.4 INFORMATION SUBMITTALS

A. Product Test Reports: Indicating compliance with requirements

B. Warranty: Sample of warranty

1.5 CLOSEOUT SUBMITTALS

A. Refer to Section 01 78 00 Closeout Submittals.

B. Maintenance data.

1.6 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 01 60 00 Product Requirements

B. Deliver materials to the project site with the manufacturer's UL Listed Labels intact and legible. Handle the materials with care to prevent damage. Store materials inside and under cover, stack flat and off floor. Project conditions (temperature, humidity, and ventilation) shall be within the maximum limit recommendations provided by manufacturer. Do not install products stored in conditions outside manufacturer's recommended limits.

1.7 WARRANTY

A. Workmanship Warranty: All materials shall be warranted against defects for a period of 1 year for the date of receipt at the project site. Provide certificates of manufacturer's standard limited warranty with closeout documents.

B. Finish Warranty: Manufacturer's warranty against deterioration of factory finishes for the period of 1 year from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

A. Basis of Design:

1. Subject to compliance with requirements, provide products by the following:

a. Total Security Solutions, Inc., 935 Garden Lane, Fowlerville, MI 48836, 866 734-6277. Attn: Sales Department, sales@tssbulletproof.com. Web: www.tssbulletproof.com.

2. Subject to compliance with requirements, manufacturers of products of equivalent design may be acceptable if approved in accordance with Section 01 25 00 Substitution Procedures.

2.2 BULLET RESISTANT ALL GLASS GLAZING

A. Through the design, manufacturing techniques and material application, the TSS Total Armor Bullet Resistant Fiberglass panels shall be made of multiple layers of woven roving ballistic grade fiberglass cloth impregnated with a thermoset polyester resin and compressed into flat rigid sheets.

B. TSS Total Armor Bullet Resistant Fiberglass will be rated and tested for UL 752 and NIJ—0108.01 at the Level indicated by the product selected

C. TSS Total Armor Bullet Resistant Fiberglass Panels in UL 752 tested and rated Levels 4 through 8 shall be available.

2.3 FABRICATION

A. Tolerances: All joints and connections shall be tight, providing hairline joints and true alignment of adjacent members.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning installation, verify that areas have been prepared as required by the Contract Documents and architectural drawings, and Shop Drawings have been approved.

B. Notify Architect of any unsatisfactory preparation that is responsibility of others.

C. Clean and prepare all surfaces per manufacturers recommendations as required for achieving the best results for the substrate under the project conditions.

D. Do not begin installation of material until all unsatisfactory conditions have been resolved and approved by Architect.

3.2 INSTALLATION

A. Do not begin installation until areas have been verified and surfaces properly prepared in accordance with Drawings.

B. Install in accordance with manufacturer's instructions and UL 752. Set all equipment plumb.

C. Apply sealant in accordance with manufacturer's recommendations as indicated in installation instructions.

D. Remove excess sealant and leave exposed surfaces clean and smooth

3.3 PROTECTION

A. Clean and protect material from damage during ongoing construction operations. If damage occurs, remove and replace as required to provide voice ports in their original, undamaged condition.

B. Inspection and Cleaning: Verify installation is complete and complies with manufacturer's requirements.

C. Provide final cleaning of product and accessories, removing excess sealant, labels and protective covers.

D. Touch-up, repair or replace damaged products prior to Substantial Completion.

END OF SECTION 10 26 41

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

SECTION 26 50 00 – LIGHTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Light fixtures, including lamps and ballasts, of the following types:

1. Interior Recessed Fixtures:
    a. Asymmetric Wash Lighting: Wall Wash, Ceiling Wash, Floor Wash.
    b. Down Lighting.
    c. Video/teleconferencing and Distance Learning Lighting.

2. Interior Surface Mount Fixtures:
    a. Asymmetric Wash Lighting: Wall Wash, Ceiling Wash, Floor Wash.
    b. Cove Lighting.
    c. Video/teleconferencing and Distance Learning Lighting.

3. Exterior Wet Location Lighting:
    a. Recessed Lighting
    b. Surface Mount Lighting

1.2 SUBMITTALS

A. Submittals: Product Data for each luminaire, including lamps

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. NFPA 70 - National Electrical Code.
2. Underwriters' Laboratories labeling.
3. Canadian Underwriters' Laboratories labeling.
4. Canadian Standards Association labeling.

C. Fixture Schedule: Manufacturer's standard fixture schedule, coordinated with project requirements and the fixture schedule on the Drawings.

D. Verification Samples: Full size unit of each fixture type, including lamps, ballasts and supports.

E. Operation and Maintenance Data: For each fixture and component, including lamps.

1.3 PROJECT CONDITIONS

A. Coordinate locations of lighting fixtures with ceilings, ceiling mounted components, fire protection and mechanical components, and partitions.

B. Maintain environmental conditions within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

PART 2 - PRODUCTS

2.1 LIGHTING FIXTURES AND COMPONENTS, GENERAL REQUIREMENTS

A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.

B. Incandescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5A.

C. Fluorescent Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5 and NEMA LE 5A as applicable.

D. HID Fixtures: Comply with UL 1598. Where LER is specified, test according to NEMA LE 5B.

E. Exterior Luminaires: Comply with UL 1598 and listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.

F. Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.

G. Plastic Parts: High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

2.2 EXIT SIGNS

A. Manufacture: See "Fixture Types" as shown on the drawings.

B. Mounting Method: For ceiling, back, end mounting or recessed as indicated on drawings. Subcontractor is cautioned to coordinate exit sign locations with Architectural details. Mounting height, in general, up 90 inches or one inch above door casing where mounted over doors; verify all exit sign locations with Executive Architect-Engineer prior to installation of outlet boxes.

C. Finish: White face for both with clear baked enamel protective coating.

D. Height of Letters: 6 inches (150 mm).

E. Conduit Knockouts: Construct all exposed back, top, bottom and side surfaces of any fixture so that no conduit knockout provisions are visible.

F. Number of Faces: As required for the position of the fixture as shown on the drawings.

G. Directional Arrows: Provide for all exit signs, except those shown to be recessed or located directly above the exit door.

H. Lamps: Light-emitting diode (LED), RED color.

2.3 EMERGENCY LIGHTING UNITS

A. Manufacture:
1. For fixtures with emergency ballasts, see "Fixture Types" as shown on the drawings.
2. For dedicated "bug-eye" type lighting fixtures, Dual-Lite EZ-2 with Spectron® self-test/self-diagnostics, or approved equal using the same battery as the Dual-Lite EZ-2.

B. Mounting Method: For ceiling, back, end mounting or recessed as indicated on drawings. Subcontractor is cautioned to coordinate emergency lights locations with Architectural details. Verify all emergency light fixtures locations with Executive Architect-Engineer prior to installation of outlet boxes.

C. Flame-rated, UV-stable thermoplastic housing. Textured white finish.

D. Fully automatic constant voltage current limited charger which includes low voltage disconnects to prevent deep discharge of the battery.

E. External push-to-test switch and AC-on indicator. Self-test/self-diagnostics monitors lamp status, lamp load transfer circuit and battery capacity and displays any fault detection by means of a flashing code.

F. Universal wall mounting pattern. Conduit entry knock-out located at the top center. Indoor and Outdoor rated.

G. Battery re-charge per UL time limits. Maintenance-free Environmentally Friendly battery.

H. User initiated 1, 5, 30, or 60-minute system test feature.

I. Unit provides a full 90 minutes of emergency lighting.

J. 15 minute re-transfer delay.

K. Minimum output 70W.

L. 120/277VAC, 60 Hz. with isolation transformer.

M. Operating Temperature Range 68°F to 86°F (20° to 30°C).

N. Temperature compensated charger.

O. Damp Location Option.

P. Five-year warranty.

2.4 LAMPS

A. Provide Sylvania, General Electric, Westinghouse, or equal lamps of size and types as indicated on the drawings. Lamps shall be operating before final review of the work is requested. Fluorescent lamps shall be tri-stimulus 3500˚K color.

B. LED lamp-life hour is approximately 50,000 hours.

2.5 LED DRIVER

A. LED driver shall be installed in an electrical enclosure.

B. Wiring inside enclosure shall comply 600V/105 degrees rating or higher.

C. LED driver shall comply with UL standard UL1012.

D. LED driver shall have Class A sound rating.

E. LED driver shall be UL certified for use in a dry or damp location.

F. LED driver shall tolerate sustained open circuit and short circuit output conditions without damage.

G. LED driver shall comply with the requirements of the FCC rules and regulations, Title 47 CFR Part 15 Non-Consumer (Class A).

2.6 LIGHT EMITTING DIODE (LED) FIXTURES

A. Luminaires shall be controlled by photocells or automatic profile dimming & motion response override as required by the design.

B. Outdoor luminaires shall have provisions for house side shield to prevent glare to uphill neighbors.

C. Luminaire shall have door frame and lens with LED arrays and integral airflow ventilation system.

D. The light distribution pattern of the luminaires shall be suitable for a S/H ratio of approximately 1.8.

E. Pole mounted lights shall have in line/in pole fusing.

F. The lighting system shall consist of the type and manufacturer as shown on the drawings or approved equal. If other than fixture shown is submitted complete illumination calculations are required to show equality.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION

A. Set units level, plumb, and square with ceiling and walls, and secure.

B. Support for Recessed and Semi-recessed Grid-Type Fluorescent Fixtures:

1. Install ceiling support system wires at a minimum of four wires for each fixture, located not more than 6 inches (150 mm) from fixture corners.
2. Support Clips: Fasten to fixtures and to ceiling grid members at or near each fixture corner with clips that are UL listed for the application.

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. Air-Handling Fixtures: Install with dampers closed.

E. Adjust aimable lighting fixtures to provide required light intensities.

F. Lamping: Where specific lamp designations are not indicated, lamp units according to manufacturer's written instructions.

3.2 OUTDOOR INSTALLATION

A. Install in accordance with manufacturers' instructions.

B. Install lighting poles at locations indicated.

C. Install poles plumb. Provide double nuts to adjust plumb. Grout around each base.

D. Install lamps in each luminaire.

E. Bond luminaires, metal accessories and metal poles to branch circuit equipment grounding conductor or provide supplementary grounding electrode at each pole as shown on the drawings.

3.3 ADJUSTING

A. Aim and adjust luminaires to provide illumination levels and distribution indicated on the drawings.

B. Relamp luminaires which have failed lamps at Date of Substantial Completion.

3.4 CLEANING

A. Clean electrical parts to remove conductive and deleterious materials.

B. Remove dirt and debris from enclosure.

C. Clean photometric control surfaces as recommended by manufacturer.

D. Clean finishes and touch up damage.

3.5 DIFFUSERS AND ENCLOSURES

A. Install lighting fixture diffusers and enclosures only after construction work, painting and clean up are completed. Handle with clean white canvas gloves.

3.6 PHOTOCELLS

A. Outdoor fixtures shall be controlled by photocells as shown on the drawings.

3.7 CLEAN-UP

A. Clean lighting control elements, lamps, fixture interiors and exposed exterior surfaces thoroughly before requesting final inspection.

END OF SECTION 26 50 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 3500 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 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.

2.6 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.

2.7 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.

2.8 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.

2.9 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.

2.10 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.

2.11 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 all 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