Project Manual
for the

CITY OF FRANKLIN

CITY OF FRANKLIN
LIBRARY PATIO

1502 P STREET
FRANKLIN, NE

ESA Project No. 15025A

JULY 2025

ERICKSON SULLIVAN
ARCHITECTS

ESA Certificate of Authorization No: CA-4491

SECTION 00 01 07

PROJECT DIRECTORY

CITY OF FRANKLIN – LIBRARY PATIO
1502 P STREET, FRANKLIN, NE 68939

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MECHANICAL / ELECTRICAL ENGINEER

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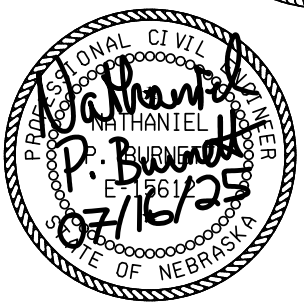

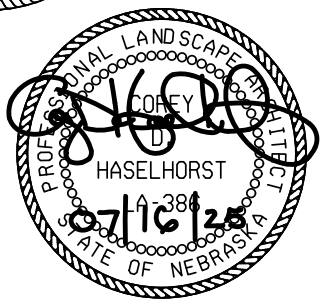

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SECTION 00 10 00

NOTICE TO BIDDERS

Sealed proposals for furnishing all plant, equipment, transportation, tools, materials, labor and skills necessary and incidental to perform all work described in the Proposed Contract Documents entitled:

CITY OF FRANKLIN, NE
CITY OF FRANKLIN - LIBRARY PATIO PROJECT

Bids will be received at the office of the City of Franklin City Hall, located at 619 15th Ave., Franklin, Nebraska, until eleven thirty, 11:30 AM, local time on Tuesday, August 5th, 2025 and will then be publicly opened and read.

The said Documents have been prepared by Erickson Sullivan Architects and will be available online on the City of Franklin webpage, and for printing from A & D Technical Supply, contact 402-474-5454 to obtain documents. Documents are also available for viewing at the Lincoln Builders Bureau, City of Franklin City Hall, and Kearney Builder's Bureau.

PROJECT DESCRIPTION: In general, work includes the construction of a new 1,780 s.f. outdoor patio area adjacent to the Franklin Public Library, including brick masonry landscape walls, new concrete paving, new landscaping, and a 700 s.f. canopy addition to the library building constructed of steel columns and beams, wood trusses, and siding and shingles to match the library. Work also includes converting an existing window into a new exterior door between the library and the patio space.

PROJECT SCHEDULE: The Owner intends to award the project as soon as possible after the bids are received and reviewed. Notice to Proceed will likely be given before the end of August. The project must be completed no later than the end of 2025.

All bids shall be made on the printed proposal forms attached to and made a part of the Proposed Contract Documents and submitted in a sealed envelope marked "Franklin City Park Project". Bids which are mailed shall be placed in a separate sealed envelope, labeled as described in this paragraph, inside the mailing envelope

Bids mailed to this office shall be addressed to: Franklin City Hall
619 15th Avenue
Franklin, NE 68939

Bids delivered in person shall be delivered to the same address.

NOTICE: Bids submitted by facsimile or electronic transmission are **NOT ACCEPTABLE.**

No bid security is required by the Contractor for this project.

Bidders may not withdraw their bids for a period of at least forty-five (45) days after the scheduled closing time for the receipt of the bids.

The Owner reserves the right to reject any or all bids and re-advertise for Bids; reserves the right to waive informalities and irregularities and to make awards on bids which furnish the materials and construction that will, in their opinion, serve the best interests of the Owner.

The City of Franklin is an equal-opportunity employer and requires all contractors and consultants to comply with all applicable Federal and State laws and regulations and RCRP Program Guidelines. Through the construction bid process, use of local subcontractors, where possible, is encouraged to support local economic development.

The City affirms its preference for small and minority businesses, women's business enterprises, and labor surplus area firms, as well as a domestic preference for procurements.

END OF SECTION 00 10 00

SECTION 00 41 13

BID PROPOSAL FORM

BID OPENING TIME: 11:30 AM Central Time
DATE: Tuesday, August 5th, 2025

Proposal Submitted To:

City of Franklin, Nebraska
Mailing Address: 619 15th Ave., Franklin, NE 68939
Hard Delivery Address: 619 15th Ave., Franklin, NE 68939

Bidders Legal Name_____ Dated _____

(A Corporation organized and existing under the laws of the State of _____)

Address_____

City, State, Zip _____

Addenda Received:

_____
(Identify addenda received by the Number. Failure of any bidder to receive any addendum or interpretation of the specifications shall not relieve the bidder from any obligations specified in the bid request.)

PROPOSAL FOR CONTRACT FOR GENERAL CONSTRUCTION AND INSTALLATION FOR THE PROJECT KNOWN AS:

City of Franklin
LIBRARY PATIO
1502 P Street
Franklin, NE

PROPOSAL:

The undersigned, having examined the plans, project manual and related documents, and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of labor, hereby proposes to furnish all labor, materials and equipment to do the work in accordance with the Contract Documents of which this proposal is a part and the terms and conditions set forth below:

Bid Sum: The undersigned proposes to perform the Work shown/described in the bidding documents, including the Discovery Allowance, for the sum of:

_____

_____ Dollars ($_____).
(Amount shall be shown in both words and figures; in case of discrepancy, the amount in words will govern.)

CONTRACT TIME:

The undersigned proposes upon full execution of the Agreement between Owner and Contractor, to substantially complete the Work for each phase of construction as outlined below:

Work shall begin upon Contract approval (anticipated to be within 2-3 weeks of the bid) and all work shall be substantially completed on or before December 31, 2025

ACCEPTANCE:

This offer shall be open to acceptance and is irrevocable for 45 days from the bid closing date.

If this bid is accepted by the Owner within the time period stated above, we will:

- Execute the Agreement within 30 days of receipt of acceptance of this bid.

If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to the Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

I understand the Owner reserves the right to reject this Bid, or to waive any informality or irregularity in my Bid received.

Respectfully submitted,

_____
(Signature)

_____
(Company) (Seal, if by a Corporation)

_____
(Business Address)

_____
(Business Address)

END OF SECTION 00 41 13

SECTION 00 52 14

AGREEMENT AND GENERAL CONDITIONS

1. AGREEMENT

AIA Document A101-2017 (2017 Edition), Standard Form of Agreement Between Owner and Contractor where the basis of payment is a stipulated sum, forms the basis of Contract between the Owner and Contractor.

2. GENERAL CONDITIONS

AIA Document A201-2017 (2017 Edition) General Conditions of the Contract for Construction, is the General Conditions between the Owner and Contractor.

END OF SECTION 00 52 14

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SECTION 00 73 13

SUPPLEMENTARY CONDITIONS

1.1 SUPPLEMENTARY CONDITIONS

A. Modifications:
   1. These Supplementary Conditions modify AIA A201 - General Conditions of the Contract for Construction and other provisions of the Contract Documents as indicated below.
   2. All provisions not modified remain in full force.

B. The terms used in these Supplementary Conditions, which are defined in AIA A201, have the meanings assigned to them in the General Conditions.

1.2 (ARTICLE 1) GENERAL PROVISIONS

A. (Subparagraph 1.1) Basic Definitions:
   1. Add following Subparagraphs:
      a. (Subparagraph 1.1.8) Products: New material, machinery, components, equipment, fixtures, and systems forming the Work, not including machinery and equipment used for preparation, fabrication, conveying, and erection of the Work. Products may also include existing materials or components required for reuse.
      b. (Subparagraph 1.1.9) Furnish: To supply, deliver, unload, and inspect for damage.
      c. (Subparagraph 1.1.10) Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, and make ready for use.
      d. (Subparagraph 1.1.11) Provide: To furnish and install.

B. (Subparagraph 1.2) Correlation and Intent of the Contract Documents:
   1. Add following Subparagraph:
      a. (Subparagraph 1.2.4): Sections of Division 01 govern the execution of the Work of all Sections of the Specifications.

1.3 (ARTICLE 9) PAYMENTS AND COMPLETION

A. (Subparagraph 9.3) Applications for Payment:
   1. Add following Subparagraph to Subparagraph 9.3.1:
      a. (Subparagraph 9.3.1.3): Until Substantial Completion, Owner shall pay up to ninety (90) percent of the amount due Contractor on account of progress payments.

1.4 (ARTICLE 11) INSURANCE AND BONDS

A. Before commencement of any work, provide certificates of Insurance executed by contractor's Insurance carrier, showing policies in force or by furnishing copy of actual policy(ies). Include endorsement or statement waiving right of cancellation or reduction in coverage unless thirty (30) day's prior written notice is given to Owner by registered or certified mail. The General Contractor shall be responsible for providing insurance coverages and limits of liability for him/herself and all subcontractors. Minimum amounts are as follows:

   1. <u>Commercial General Liability:</u>

General Aggregate:	$1,000,000
Bodily Injury & Property Damage:	$500,000 each occurrence

Aggregate:	$1,000,000
Personal Injury:	$500,000 each occurrence
Contractual Liability:	$1,000,000 each occurrence
Products and Completed Operations:	$1,000,000 each occurrence

The coverage shall be provided under a Comprehensive General Liability form of policy or similar thereto. The property damage coverage shall include A Broad Form Property Damage Endorsement.

2. Auto Liability:

Bodily Injury & Property Damage:	$1,000,000 Combined Single Limit

3. Worker's Compensation:

Coverage A:		Statutory Limits
Coverage B:	Bodily Injury by Accident	$500,000 each accident

4. Umbrella Liability Policy: This insurance shall protect Contractor, Owner, and Architect against all claims in excess of the limits provided under the workmen's compensation and employer's liability, comprehensive automobile liability policies. The liability limits of the umbrella liability policy shall not be less than $1,000,000.

5. Builders Risk Insurance:

   Equal in amount to the Construction value of the Project, not including land and earthwork costs. Property insurance shall "provide coverage for direct physical loss or damage to the project" and shall include, without limitation, insurance against the perils of fire and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for the Owner's, Architect's and Contractor's services and expenses required as a result of such insured loss.

   The Contractor shall obtain all insurance coverage with insurers authorized to do business in the State of Nebraska. The Contractor shall not commence work under this Contract until the Contractor has obtained all Insurance required by the Contract Documents, and the Owner has approved such Insurance for compliance with the Contract Documents. The Contractor shall not allow any Subcontractor to commence work on any subcontract until Subcontractor has likewise obtained all similar Insurance required of the Subcontractor.

B. The successful bidder shall be required to furnish Performance and Payment Bonds (AIA document A312) in the amount of 100% of the contract amount at the time of Contract Execution.
   1. Contractors unfamiliar with the Performance and Payment Bond form AIA document A312 may examine them at the local AIA Chapter office or by contacting the Architect.
   2. The Contractor will be required to execute the Performance and Payment Bond prior to the start of construction, said bond to be in the amount of 100% of the contract amount. The Contractor shall present the Bonds at the time of signing of the Contract of all parties thereof.
   3. Bonds are to be issued by a surety company acceptable to the Owner, and properly licensed by the State of Nebraska to issue such bonds. The contract bond must be signed by the surety company’s attorney-in-fact. A Power of Attorney for the attorney-in-fact must be attached.

a. The power must be an original with wet signatures. The individual signing the certification must be authorized to sign for the surety company. The certification must be dated.
b. The surety company's seal must be affixed.
c. Such Power of Attorney as required above must not have expired or have been revoked prior to its application. In the case of a Power of Attorney without an expiration date, it must be executed within five (5) years prior to its application to the contract.

4. The Project Manual requires certain guarantees of the Work after its final acceptance and payment, and the Performance Bond shall cover such guarantees.

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SECTION 01 00 00

GENERAL REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Summary:
1. Contract description.
2. Work by Owner.
3. Contractor’s use of premises.
4. Permit Fees.

B. Price and Payment Procedures:
1. Schedule of values.
2. Applications for payment.
3. Alternates.

C. Administrative Requirements:
1. Coordination.
2. Field engineering.
3. Preconstruction meetings.
4. Progress meetings.
5. Cutting and patching.

D. Submittals:
1. Submittal procedures.
2. Construction progress schedules.
3. Proposed products list.
4. Product data.
5. Shop drawings.
6. Samples.
7. Manufacturer’s instructions.
8. Manufacturer’s certificates.

E. Quality Requirements:
1. Quality control.
2. Tolerances.
3. References.
4. Labeling.
5. Mock-ups.
6. Testing and inspection laboratory services.
7. Manufacturer’s field services and reports.
8. Examination.
9. Preparation.

F. Temporary Facilities and Controls:
   1. Temporary electricity.
   2. Temporary lighting for construction purposes.
   3. Temporary heating and cooling.
   4. Temporary ventilation.
   5. Telephone and facsimile service.
   6. Temporary water service.
   7. Temporary sanitary facilities.
   8. Field offices and sheds.
   9. Parking.
   10. Progress cleaning and waste removal.
   11. Fire prevention facilities.
   12. Barriers and fencing.
   13. Enclosures.
   14. Protection of installed work.
   15. Security.
   16. Water control.
   17. Pollution and environmental control.
   18. Removal of utilities, facilities, and controls.

G. Product Requirements:
   1. Products.
   2. Delivery, handling, storage, and protection.
   3. Product options.
   4. Substitutions.

H. Execution Requirements:
   1. Closeout procedures.
   2. Final cleaning.
   3. Starting of systems.
   4. Demonstration and instructions.
   5. Testing, adjusting and balancing.
   6. Protecting installed construction.
   7. Project record documents.
   8. Operation and maintenance data.
   9. Spare parts and maintenance materials.
   10. Warranties.

1.2 CONTRACT DESCRIPTION

A. Perform Work of Contract under a stipulated sum contract with Owner in accordance with Conditions of Contract.

1.3 WORK BY OWNER

A. Owner may award various contracts for work commensurate with this project, which may be completed in tandem with the work on this project. The Contractor awarded the project described herein will be expected to coordinate scheduling and installation requirements with the Owner's Contractors.

B. Items noted as NIC (Not in Contract), movable cabinets, furnishings, minor equipment, and other noted items will be furnished and installed by Owner after Substantial Completion of each phase of construction.

1.4 CONTRACTOR'S USE OF PREMISES

A. The Contractor and subcontractors shall confine their equipment, apparatus, storage of materials, and operation of his or her workers to limits indicated by law, ordinance, permits, or direction of the Owner and shall not unnecessarily encumber the premises with their materials.

B. The Contractor shall not load or permit any part of a structure to be loaded with a weight that will endanger its safety.

1.5 PERMIT FEES

A. The Contractor is responsible for securing all necessary permits; however, the Owner will pay all permit fees.

1.6 SCHEDULE OF VALUES

A. Submit schedule on AIA Form G703.

B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

1.7 APPLICATIONS FOR PAYMENT

A. Submit three copies of each application on AIA Form G702 and G703.

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

C. Payment Period: Monthly.

1.8 CHANGE PROCEDURES

A. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for Change Order as approved by Architect/Engineer.

B. Change Order Forms: AIA G701.

C. Unit Price Change Order: For pre-determined unit prices and quantities, Change Order will be executed on fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under Construction Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.

1.9 ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option.

B. Coordinate related Work and modify surrounding Work as required.

1.10 COORDINATION

A. The Contractor shall, at their cost, provide access to and coordinate all construction administration work in an online software platform such as ProCore, Submittal Exchange, etc. throughout the duration

of the project, including project closeout. The Owner and Design Team shall be granted access to the platform, and all submittals and construction correspondence is to be delivered via this method.

B. Coordinate scheduling, submittals, and Work of various sections of specifications to ensure efficient and orderly sequence of installation of interdependent construction elements.

C. Verify utility requirement characteristics of operating equipment are compatible with building utilities.

D. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable.

E. In finished areas, conceal pipes, ducts, and wiring within construction.

1.11 FIELD ENGINEERING

A. Contractor shall employ a land surveyor to locate reference datum and protect survey control and reference points.

B. Establish elevations, lines, and levels and certify elevations and locations of the Work conform with Contract Documents.

C. Verify field measurements are as indicated on shop drawings or as instructed by manufacturer.

1.12 PRECONSTRUCTION MEETINGS

A. Owner will schedule pre-construction meeting after Notice of Award for affected parties.

B. When required in individual specification section, convene pre-installation meeting at Project site prior to commencing work of section.

1.13 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at maximum two times monthly.

B. Contractor shall preside at meetings; record minutes, and distribute copies within two days to those in attendance at meeting, and those affected by decisions.

1.14 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching new Work; restore Work with new Products.

B. Submit written request in advance of cutting or altering structural or building enclosure elements.

C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
   1. Fit several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Cut masonry and concrete materials using masonry saw or core drill. Restore Work with new Products in accordance with requirements of Contract Documents.

E. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

F. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

G. Refinish surfaces to match adjacent finishes.

1.15 SUBMITTAL PROCEDURES

A. Submittal form to identify Project, Contractor, subcontractor or supplier; and pertinent Contract Document references.

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

C. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of completed Work.

D. Revise and resubmit submittals as required; identify changes made since previous submittal.

1.16 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial progress schedule in duplicate within 15 days after date of Owner-Contractor Agreement for Architect/Engineer review.

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

C. Submit horizontal bar chart with separate line for each section of Work, identifying first work day of each week.

1.17 PROPOSED PRODUCTS LIST

A. Within 15 days after date of Owner-Contractor Agreement, submit list of major Products proposed for use, with name of manufacturer, trade name, and model number of each product.

1.18 PRODUCT DATA

A. Product Data:
   1. Submitted to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.

B. Submit number of copies which Contractor requires, plus three copies which will be retained by Architect/Engineer, plus one (1) for Owner review..

C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer’s standard data to provide information unique to this project.

1.19 SHOP DRAWINGS

A. Shop Drawings:
   1. Submitted to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.

B. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
   1. Include signed and sealed calculations to support design.
   2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
   3. Make revisions and provide additional information when required by authorities having jurisdiction.

C. Submit number of opaque reproductions Contractor requires, plus three copies which will be retained by Architect/Engineer, plus one (1) for Owner review.

1.20 SAMPLES

A. Samples for Review:
   1. Submitted to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.

B. Samples For Selection:
   1. Submitted to Architect/Engineer for aesthetic, color, or finish selection.
   2. Submit samples of finishes from full range of manufacturer's standard colors, textures, and patterns for Architect/Engineer selection.
   3. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes as specified.

C. Submit samples to illustrate functional and aesthetic characteristics of Product.

D. Submit samples of finishes from full range of manufacturer's standard colors, textures, and patterns for Architect/Engineer's selection.

1.21 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit manufacturer printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

1.22 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification sections, submit certifications by manufacturer to Architect/Engineer, in quantities specified for Product Data.

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

1.23 QUALITY CONTROL

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturer's instructions.

C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.24 TOLERANCES

A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply fully with manufacturer's tolerances.

1.25 REFERENCES

A. Conform to reference standards by date of issue current as of date of Contract Documents.

B. When specified reference standard conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

1.26 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
   1. Model number.
   2. Serial number.
   3. Performance characteristics.

1.27 MOCK-UPS

A. Tests will be performed under provisions identified in this section and identified in respective product specification sections.

B. Accepted mock-ups are representative of quality required for the Work.

C. Where mock-up has been accepted by Architect/Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

1.28 TESTING AND INSPECTION LABORATORY SERVICES

A. Contractor will appoint, employ, and pay for specified services of independent firm to perform testing and inspection.

B. Independent firm will perform tests, inspections, and other services as required.

C. Cooperate with independent firm; furnish samples as requested.

D. Re-testing required because of non-conformance to specified requirements will be charged to Contractor.

1.29 MANUFACTURER’S FIELD SERVICES AND REPORTS

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to furnish qualified staff personnel to observe site conditions and to initiate instructions when necessary.

B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturer’s written instructions.

1.30 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify utility services are available, of correct characteristics, and in correct location.

1.31 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

1.32 TEMPORARY ELECTRICITY

A. Owner will pay cost of electricity used, except as needed for temporary heating.

B. Provide temporary electricity and power outlets for construction operations, connections, branch wiring, distribution boxes, and flexible power cords as required. Do not disrupt Owner's need for continuous service.

1.33 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain temporary lighting for construction operations.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Permanent building lighting may **not** be utilized during construction.

1.34 TEMPORARY HEATING AND COOLING

A. Provide heating and cooling devices and heat and cool as needed to maintain specified conditions for construction operations.

B. The Contractor will pay cost of energy used.

C. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

D. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

E. Permanent building heating and cooling may not be used during construction to temporarily heat and cool the building.

1.35 TEMPORARY VENTILATION

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.36 TELEPHONE AND FACSIMILE SERVICE

A. Provide, maintain and pay for telephone and telephone facsimile service to field office at time of project mobilization. Allow Architect/Engineer incidental use.

1.37 TEMPORARY WATER SERVICE

A. Connect to existing water source for construction operations.

1.38 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Existing facilities may not be used.

B. Maintain in clean and sanitary condition.

1.39 FIELD OFFICES AND SHEDS

A. Office: Weather tight, with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 8 persons.

1.40 PARKING

A. Temporary parking areas to accommodate construction personnel shall be at areas designated on site plan or on perimeter on-street parking.

1.41 PROGRESS CLEANING AND WASTE REMOVAL

A. Collect and maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

1.42 FIRE PREVENTION FACILITIES

A. Establish fire watch for cutting and welding and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

B. Portable Fire Extinguishers: NFPA 10; 10 pound capacity, 4A-60B: C UL rating.
   1. Provide minimum one fire extinguisher in every construction trailer and storage shed.
   2. Provide minimum one fire extinguisher on roof during roofing operations using heat producing equipment.

1.43 BARRIERS AND FENCING

A. Provide fencing to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage.

B. Construction: Commercial grade chain link fence.

C. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks, as designated on Drawings or as coordinated with Owner.

1.44 ENCLOSURES

A. Provide temporary weather tight closures to exterior openings to permit acceptable working conditions and protection of the Work.

B. Provide temporary partitions as indicated on Drawings or as directed by Owner to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.

1.45 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Prohibit traffic or storage upon waterproofed or roofed surfaces.

1.46 SECURITY

A. Provide security and facilities to protect Work and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.47 WATER CONTROL

A. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Provide erosion control.

1.48 POLLUTION AND ENVIRONMENTAL CONTROL

A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

B. Provide dust control, erosion and sediment control, noise control, pest control and rodent control to allow for proper execution of the Work.

1.49 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion review.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.50 PRODUCTS

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

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by the Contract Documents.

C. Provide interchangeable components of same manufacturer for components being replaced.

1.51 DELIVERY, HANDLING, STORAGE, AND PROTECTION

A. Deliver, handle, store, and protect Products in accordance with manufacturer's instructions.

1.52 PRODUCT OPTIONS

A. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for manufacturers not named.

1.53 SUBSTITUTIONS

A. Instructions to Bidders specify time for submitting requests for Substitutions during bidding period to requirements specified in this section.

B. Substitutions after the bid will only be considered when Product becomes unavailable through no fault of Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.

1.54 CLOSEOUT PROCEDURES

A. Submit written certification Contract Documents have been reviewed, Work has been inspected, and Work is complete in accordance with Contract Documents and ready for Architect/Engineer's inspection.

B. Submit final Application for Payment identifying total adjusted Contract Sum/Price, previous payments, and amount remaining due.

1.55 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces.

C. Clean debris from site, roofs, gutters, downspouts, and drainage systems.

D. Replace filters of operating equipment.

E. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.56 STARTING OF SYSTEMS

A. Provide seven days notification prior to start-up of each item.

B. Ensure each piece of equipment or system is ready for operation.

C. Execute start-up under supervision of responsible persons in accordance with manufacturer’s instructions.

D. Submit written report stating equipment or system has been properly installed and is functioning correctly.

1.57 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at equipment location.

1.58 TESTING, ADJUSTING, AND BALANCING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Refer to Mechanical Specifications to testing, adjusting and balancing of all mechanical systems.

C. Re-testing required because of non-conformance to specified requirements will be charged to Contractor.

1.59 PROTECTING INSTALLED CONSTRUCTION

A. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

B. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

C. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

D. Prohibit traffic from landscaped areas.

1.60 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of Contract Documents to be utilized for record documents.

B. Record actual revisions to the Work. Record information concurrent with construction progress.

C. Specifications: Legibly mark and record at each Product section description of actual Products installed.

D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.

E. Submit documents to Architect/Engineer with claim for final Application for Payment.

1.61 OPERATION AND MAINTENANCE DATA

A. Submit two sets prior to final inspection, bound in 8½ x 11 inch text pages, three D style ring binders with durable plastic covers.

B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.

C. Internally subdivide binder contents with permanent page dividers, logically organized, with tab titles legibly printed under reinforced laminated plastic tabs.

D. Contents:

1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, subcontractors, and major equipment suppliers.
2. Part 2: Operation and maintenance instructions, arranged by system.
3. Part 3: Project documents and certificates.

E. Submit all information also in digital format combined and categorized as noted above, including an archive of the online coordination platform information. Provide the data on a portable drive.

1.62 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.

B. Deliver to Project site Owner; obtain receipt prior to final payment.

1.63 WARRANTIES

A. Provide duplicate notarized copies.

B. Execute and assemble transferable warranty documents from subcontractors, suppliers, and manufacturers.

C. Submit prior to final Application for Payment.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION 01 00 00

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 RELATED SECTIONS

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

1.2 PROJECT

A. Project Name: City of Franklin - Library Patio

B. Owner Name: City of Franklin.

C. Project Description: In general, work includes the construction of a new 1,780 s.f. outdoor patio area adjacent to the Franklin Public Library, including brick masonry landscape walls, new concrete paving, new landscaping, and a 700 s.f. canopy addition to the library building constructed of steel columns and beams, wood trusses, and siding and shingles to match the library. Work also includes converting an existing window into a new exterior door between the library and the patio space.

D. Include all material, labor, tools, expendable equipment, utility and transportation services, and all incidental items necessary to perform and complete, in a workmanlike manner, the work required for general construction including the miscellaneous work as shown in the Plans, Specifications, and Bid Documents.

E. Architect: Erickson Sullivan Architects, 110 S. 14th Street, Suite 200, Lincoln, NE 68508.

1.3 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price

1.4 OWNER OCCUPANCY

A. Owner intends to occupy the Project upon issuance of Substantial Completion Certification.

B. Cooperate with the Owner to minimize conflict and to facilitate Owner’s operations.

C. Schedule the Work to accommodate Owner occupancy.

1.5 WORK BY OWNER

A. Owner will provide the following:
   1. Sidewalk as noted on the civil drawings.
   2. Furnishings as shown on the drawings.
   3. Other work if indicated on the drawings.

1.6 PREFERENCE FOR LOCAL SUPPLIERS AND TRADES

A. The Owner encourages the use of local material suppliers and tradesmen when possible to advance local economic development. The following is a list of suppliers and contractors who have shown an interest in contributing to the project. Use of local workers is not required but encouraged, and the Owner may give slight preference to bidders utilizing local labor and materials. Bidders are

encouraged to clarify if any local entities will be included in the work and their proposed scope with their bids.

Vendor Name	Phone	Potential Available Materials
Plank Hardware	308-425-3711	Toilets, Bathroom Accessories, Paint
Smith Lumber	308-425-6233	Lumber, Paint, Hardware
Duncan Welding	308-425-3462	Ironwork
Contractors - Potential for Subcontractor Work		
Finishline Construction	308-470-0998	Andy & Wes Grube
DJ Construction	308-470-1073	Danny Saathoff
Steve Detlefsen Construction	308-991-3842	Steve Detlefsen
Dudley Dallmann Construction		Dudley Dallmann
MEP Subcontractors		
Josh Johnson	308-470-4590	
Rep Valley Electric	308-233-1148	Ryan Meichtry
Fiddlke Heating & Air	308-234-2141	
Painting		
Cindy Rubendall	308-470-1169	

1.7 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings. City Park and the Library building will be in use/operation throughout construction. The contractor will be required to keep the site clean and safe for pedestrians.

B. The Owner will provide the Contractor any available information, which it develops concerning the project, the site, including any surveys concerning physical characteristics, utility locations, legal limitations, and legal descriptions.

C. Contractor is required to give notice in writing at least 48 hours before breaking ground, to all persons, Public Utility Companies, Owners of property having structures or improvements in proximity to site of the Work, superintendents, inspectors, or those otherwise in charge of property, streets, water pipes, gas pipes, sewer pipes, telephone cables, electric cables, or otherwise, who may be affected by Contractor's operation, in order that they may remove any obstruction for which they are responsible and have representative on site to see that their property is properly protected. Such notice does not relieve Contractor of responsibility for any damages, claims, and defense of all actions against Owner and Architect resulting from performance of such work in connection with or arising out of Contract.

D. Access to the site shall be during regular working hours and on the regular working days of the Owner’s employees. Special time arrangements may be coordinated with the Owner when necessary.

E. Provide access to and from site as required by law and by Owner:
   1. Confine equipment, apparatus, materials storage and workers to the immediate project area.
   2. Do not unnecessarily interfere with operation of other contractors on site.
   3. Do not obstruct roadways, sidewalks, or other public ways without permission.

F. Watchman: The services of a watchman are not required under this contract. However, all contractors are responsible for and make good any loss of or damages to the work required by the contract due to vandalism or robbery during construction.

G. Site Utilities:
   1. Utilities have been disconnected from the building. New utility services are to be installed per the documents. Coordinate with all local utilities.

H. Water Precautions:
   1. Keep all parts of site, including excavations, free from any accumulation of water, no matter what source of cause.
   2. Dispose of water in such manner as will not endanger public health or cause damage or expense to property. Comply with requirements of any public agencies having jurisdiction. If sewers and streets are allowed to be used for drainage or disposal of water furring construction, maintain and leave these satisfactorily clean upon completion of work.

1.8 REGULATORY REQUIREMENTS

A. Code Compliance: All work specified herein shall conform to the IBC (International Building Code), Life Safety Code and State Fire Marshal regulations governing safety to life from fire and like emergencies in buildings and structures; and general fire prevention, the National Electrical Code, and the National Plumbing Code.

END OF SECTION 01 10 00

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SECTION 02 41 16

STRUCTURE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Demolishing selected work on designated structures.
2. Demolishing and disconnecting and capping designated utilities.
3. Demolishing designated building components, equipment and fixtures.
4. Removing designated items for reuse and Owner's retention.
5. Protecting items designated to remain.
6. Removing demolished materials.

1.2 SUBMITTALS

A. Shop Drawings and Schedule: Describe demolition, removal procedures, sequence and schedule.

B. Design Data: Submit calculations for bracing, shoring, and underpinning to protect structures indicated to remain signed and sealed by professional engineer.

1.3 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of capped utilities.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Document condition of adjacent structures indicated to remain.

B. Monitor buildings for movement during demolition operations. Notify Architect/Engineer of measured movement.

3.2 PREPARATION

A. Call Local Utility Line Information service at not less than three working days before performing Work.
1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Provide, erect, and maintain temporary barriers and security devices.

C. Notify adjacent owners of work which may affect their property, potential noise, utility outage, or disruption three days prior to the start of Work. Coordinate with Owner.

D. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.

E. Protect existing landscaping materials, structures, equipment and furnishings indicated to remain.

F. Erect and maintain weatherproof airtight closures for exterior openings.

G. Erect and maintain temporary partitions to prevent spread of dust, odors and noise to permit continued Owner occupancy.

H. Protect existing items indicated to remain.

3.3 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures and building areas.

B. Conduct operations with minimum interference to public or private accesses.

C. Maintain protected egress and access at all times. Do not close or obstruct roadways or sidewalks without permits and approval from the Owner.

D. Cease operations immediately when adjacent structures appear to be in danger. Notify Architect.

3.4 BUILDING DEMOLITION

A. Demolish components indicated in orderly and careful manner.

B. Remove foundations to minimum two feet below finished grade.

C. Remove concrete slabs on grade.

D. Backfill areas excavated resulting from demolition with fill materials. Backfill and compact fill materials as specified in Division 31.

E. Rough grade and compact areas affected by demolition to maintain site grades and contours.

3.5 SELECTIVE DEMOLITION

A. Refer to Specification Division 01 Construction Waste Management regarding salvaging, recycling and disposal requirements.

B. Demolish and remove components in orderly and careful manner, in sequence specified in Division 01 - General Requirements as indicated on Drawings.

C. Protect existing supporting structural members and adjacent construction.

D. Items noted to be salvaged on the drawings should be carefully removed. Salvaged items to be reused in construction should be protected stored and reinstalled as indicated on the drawings. Items not reused should be offered to the Owner for first right of refusal prior to recycling or removal.

E. Protect temporarily exposed openings in existing building during demolition and construction (exposed tops of walls, roof edge, new window or door openings) from infiltration of water, dirt, dust and debris until covered by new construction.

3.6 CLEAN UP

A. Remove demolished materials from site as work progresses.

B. Refer to Specification Section

C. Leave areas of work in clean condition.

END OF SECTION 02 41 16

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes for the following:
   1. Interior floor slabs on grade.
   2. Foundations and footings.
   3. Stem walls and pilasters.

1.2 SUBMITTALS

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

B. Design Mixtures: For each concrete mixture. Furnish coarse and fine aggregate gradations.

C. Shop Drawings: For steel reinforcement. Comply with ACI 315 “Manual of Standard Practice for Detailing Reinforced Concrete”. Bar Lists will not be reviewed for general compliance with the Contract Documents.

D. Material test reports and certificates.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.
   1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
   1. ACI 301, "Specification for Structural Concrete," Sections 1 through 5.
   2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

PART 2 PRODUCTS

2.1 FORM-FACING MATERIALS

A. Exposed finished concrete surfaces shall be formed using plywood or metal. Use of aluminum forms is prohibited. Provide continuous, straight, smooth, exposed surfaces and furnish forms in largest possible sizes to minimize the number of joints and that conform to joint system shown on plans.
   1. Use overlaid plywood complying with U.S. Product Standard PS-1 “A-C or B-B High Density Overlaid Concrete Form, Class 1”

B. Unexposed finished concrete surfaces shall be formed using plywood or metal. Use of aluminum forms is prohibited. Provide lumber dressed on at least two (2) edges and one side for tight fit.

C. Form Coatings shall be commercial formulation form-coating compounds with a minimum VOC of 350 mg/L that will not bond with, stain or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

D. Form Ties shall be factory fabricated, adjustable length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal.
   1. Provide ties that will leave no metal closer than 1-½ inches to exposed surface.
   2. Provide ties that will leave holes not larger than 1-inch diameter in concrete surface.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Weldable Reinforcing Bars: ASTM A 706, Grade 60, deformed.

C. Epoxy Coated Reinforcing Bars: ASTM A775, Grade 60 deformed.

D. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets. Rolled sheets are not permitted.

E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice." If supports are steel, they shall be epoxy coated where epoxy coated reinforcing is being supported.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
   1. Portland Cement: ASTM C 150, Type I or II. Cement may be supplemented with the following:
      a. Fly Ash: ASTM C 618, Class C or F.

B. Aggregate for concrete shall comply with the requirements of Section 1033 of the latest edition of the NDOR Standard Specifications for Highway Construction.

C. Water: ASTM C 94 and potable.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
   1. Water-Reducing Admixture: ASTM C 494, Type A.
   2. Retarding Admixture: ASTM C 494, Type B.
   3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
   4. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
   5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
   6. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.4 VAPOR BARRIERS

A. Vapor Barrier Membrane must meet the following requirements:
   1. Water vapor transmission rate: 0.006 WVTR or lower as per ASTM E 96;
   2. Water vapor barrier: Meet or exceed Class A (Plastics), ASTM E 1745;
   3. Permeance Rating: 0.01 Perms or lower as per ASTM E96.

B. Acceptable Manufacturers:
   1. Stego Wrap 15-mil Vapor Barrier by STEGO INDUSTRIES LLC, San Juan Capistrano, CA (877) 464-7834 www.stegoindustries.com

C. Accessories: Seam tape, mastic and pipe boots as recommended by manufacturer and with a water vapor transmission rate of 0.3 Perms or lower as per ASTM E 96.

D. Granular Fill: Clean mixture of crushed limestone aggregate meeting NDOR 47B coarse aggregate specification.

E. Sand Choker: Clean choker course of sand meeting NDOR 47B fine aggregate specification.

2.5 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Exposed Concrete Floors (unpolished): Concrete densifier, sealer, hardener; alkaline siliconate solution, reduction of abrasion ASTM-C-779 56%, ten year warranty, “Seal Hard” by L&M Construction Chemicals, Inc or approved equivalent. Followed by Water Repellant Treatment, VOC compliant, odorless, silane/siloxane blend, ten year warranty, “Aquapel” by L&M Construction Chemicals, or approved equivalent.

F. Exposed Polished Concrete Countertops: These counters as noted on the drawings shall receive a diamond grind to a Class B Fine Aggregate exposure finish, have joints and cracks larger than 1/16” filled and sealed, and then receive a densifier hardener and penetrating concrete sealer and be polished to a Level 2 Satin finish. Products shall be RetroPlate Concrete Polishing System or approved equivalent, www.retroplatesystem.com

2.6 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: Sonneborn Sonoflex F or equal.

B. Patching Compound: Cement-based, epoxy modified, compound for applications from one inch thick to feathered edge.

C. Bonding Compound: Solvent-free, moisture-tolerant, epoxy-modified, cementitious product specifically formulated as a bonding agent and an anti-corrosion coating.

2.7 CONCRETE MIXTURES

A. Concrete for interior slabs-on-grade shall be Class 47B (4000) in accordance with the requirements of Section 1002 of the latest edition of NDR Standard Specifications for Highway Construction.

B. Concrete for footings shall be Class 47B (3000) in accordance with the requirement of Section 1002 of the latest edition of the NDR Standard Specifications for Highway Construction.

C. Proportion normal-weight concrete mixture for footings as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.53.
3. Fly ash not to exceed 30 percent of cementitious materials content by weight.
4. Slump Limit: 3 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
5. Air Content: 6 percent, plus or minus 1.0 percent at point of delivery.

D. Proportion normal-weight concrete mixture for slabs on grade as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Fly ash not to exceed 15 percent of cementitious materials content by weight.
4. Slump Limit: 3 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
5. Air Content: 6 percent, plus or minus 1.0 percent at point of delivery.
6. Minimum limestone coarse aggregate content: 30 percent.
7. Minimum cementitious material content: 564 lb/cu. yd.

E. Proportion normal-weight concrete mixture for toppings as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Fly ash not to exceed 15 percent of cementitious materials content by weight.
4. Slump Limit: 3 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
5. Air Content: 6 percent, plus or minus 1.0 percent at point of delivery.
6. Minimum limestone coarse aggregate content: 30 percent.
7. Minimum cementitious material content: 564 lb/cu. yd.

2.8 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to the Concrete Reinforcing Steel Institute’s (CRSI) "Manual of Standard Practice."

2.9 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.
1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

B. "Wet-setting" of embedded items is not permitted.

3.3 VAPOR BARRIERS

A. Vapor Barrier: Place, protect, and repair vapor barriers according to ASTM E 1643 and manufacturer's written instructions.
   1. Vapor barrier to be installed on top of properly installed granular fill: moisten and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus ¾ inch. Top granular fill with choker course.
   2. Unroll vapor barrier with the longest dimension parallel with the direction of the pour.
   3. Lap vapor barrier over footings and seal to foundation walls.
   4. Overlap joints 6 inches and seal with manufacturer's recommended tape.
   5. Seal all penetrations, including pipes, per manufacturer’s recommendations with mastic or tape or both.
   6. No penetration of vapor barriers is allowed except for reinforcing steel and permanent utilities.
   7. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all four sides with tape.
   8. Prior to installation of reinforcement, the completed vapor barrier installation shall be reviewed by the Architect.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
   1. Do not cut or puncture vapor barriers. Repair damage and reseal vapor barrier before placing concrete.

B. Clean reinforcement of loose rust, earth, ice, and other materials that reduce bond with concrete.

C. Accurately position, support, and secure reinforcement against displacement prior to placing concrete. Locate and support reinforcing by bolsters, chairs or other devices. Do not secure reinforcement to re-bar driven into ground or on rocks, dirt clods or other debris. Do not "float in" reinforcement.

D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire fabric of flat sheet stock in as large pieces as practicable. Rolled stock is not permitted. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

F. Coat cut ends of reinforcing and damaged areas of epoxy coating with repair paint obtained from and/or recommended by the reinforcing fabricator.

3.5 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
   1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
   2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide joints into concrete when cutting action will not tear,

abrade, or otherwise damage surface and before concrete develops random contraction cracks. **Sawed joints must be continued to the edge of the slab.**

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

E. Provide joint fillers and sealant at all joints, including isolation, expansion and contraction joints.

F. At concrete toppings, tool or sawcut control joints immediately over existing joints. If existing concrete is cracked, install joints on lines parallel and perpendicular to the building as close to the crack locations as possible.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of vapor barriers, formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.7 FINISHING FORMED SURFACES

A. Smooth-Exposed Vertical Concrete Surfaces shall receive a Grade B Finish: Fill air pockets and holes larger than 1/4 inch (6 mm) in diameter with sand-cement paste matching color of adjacent surfaces. Fill air holes greater than 1/8 inch (3 mm) in width that occur more than once per 2 sq. in. (1300 sq. mm). Grind smooth form offsets or fins larger than 1/8 inch (3 mm). Repair surface blemishes due to holes or dents in molds. Discoloration at form joints is permitted.

B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.8 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for consolidating, screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic tile.

2. Finish and measure surface to conform to F_F35-F_L25 tolerances.

D. Trowel and Fine-Broom Finish: Apply a first trowel finish to pavement surfaces. While concrete is still plastic, slightly scarify surface with a fine broom.
   1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.9 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
   1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
   2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
   3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
      a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
   4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

D. Exposed Concrete Floors (unpolished): Concrete densifier, sealer, hardener; alkaline siliconate solution, reduction of abrasion ASTM-C-779 56%, ten year warranty, “Seal Hard” by L&M Construction Chemicals, Inc or approved equivalent. Followed by Water Repellant Treatment, VOC compliant, odorless, silane/siloxane blend, ten year warranty, “Aquapel” by L&M Construction Chemicals, or approved equivalent.

E. Exposed Polished Concrete Counters: These counters as noted on the drawings shall receive a diamond grind to a Class B Fine Aggregate exposure finish, have joints and cracks larger than 1/16” filled and sealed, and then receive a densifier hardener and penetrating concrete sealer and be polished to a Level 2 Satin finish. Products shall be RetroPlate Concrete Polishing System or approved equivalent, www.retroplatesystem.com

3.10 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades. Mix, place, and cure concrete to blend with in-place construction.

C. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and slope using a template. Correct low and high areas as herein specified.
   1. Repair finished unformed surfaces that contain defects that affect durability of concrete. Surface defects include crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
   2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
   3. Correct low areas in unformed surfaces by cutting out low areas and replacing with patching compound. Finish repaired areas to blend into adjacent concrete.
   4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete.

3.11 FIELD QUALITY CONTROL

A. Testing and Inspecting: Contractor shall engage a qualified testing agency to perform testing and inspections and prepare test reports and inform the Architect of any deficiencies. All test results shall be submitted to the Architect for review.
   1. Testing Services: Tests shall be performed according to ACI 301.

B. Sampling and testing for quality control during placement of concrete include the following. Additional tests may be required as directed by Architect.
   1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
      a. Slump: ASTM C 143; one test at point of discharge for each set of compression test cylinders taken; additional tests when concrete consistency seems to have changed. Tests shall be performed prior to the addition of water or water-reducing admixtures.
      b. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each set of compression test cylinders taken.
      c. Compression Test Specimen: ASTM C 39; one set of 4 cylinders for each day's pour of each mix type for the first 25 cu. yds, plus additional sets for each 50 cu. yds.; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
         1) The size of cylinder to be used shall be determined by the maximum coarse aggregate size. For mixes containing a maximum aggregate size of 1” or less, 4”x8” cylinders may be used. For mixes containing a maximum aggregate size greater than 1 ½”, 6”x12” cylinders shall be used. Refer to ASTM C31 for further information.

C. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.

D. Report test results in writing to Owner, Architect, Structural Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests. Additional testing required due to deficiencies found in initial test results shall be at the cost of the contractor.

E. Additional Tests: Make additional tests of in-place concrete when test results indicate specified strengths and other characteristics have not been attained. Conduct tests by cored cylinders complying with ASTM C 42, or other methods as directed by the Architect.

F. Concrete trucks may be rinsed on site as long as a dedicated rinse site is used and the area cleaned by the Contractor after concrete installation has been completed.

END OF SECTION 03 30 00

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SECTION 04 73 50

CAST STONE

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. All labor, materials and equipment to provide the Cast Stone shown on architectural drawings and as described in this specification.

B. Manufacturer shall furnish and deliver Cast Stone covered by this specification.

C. Setting contractor shall unload, sore, furnish all anchors and set Cast Stone.

1.2 QUALITY ASSURANCE

A. Qualification of manufacturer: Shall be a current producer member of the Cast Stone Institute.

B. The Manufacture shall have a minimum of five years of continuous operation, having experience, adequate facilities and capacity to furnish the quality, sizes and quantity of cast stone required without delaying the progress of the work, and whose products have been previously used and exposed to the weather with satisfactory results.

C. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

1. Cast Stone Institute Technical Manual (Current Edition).
2. ASTM C 150 – Specification for portland cement.
3. ASTM C 33 – Specification for concrete aggregates.
4. ASTM C 979 – Specification for coloring pigments for integrally pigmented concrete.
5. ASTM C 494 – Specification for concrete admixtures.
6. ASTM A 615 – Specification for deformed and plain billet steel bars for concrete Reinforcement.
7. ASTM C 1194 – Test method for compressive strength of architectural cast stone.
8. ASTM C 1195 – Test method for absorption of architectural cast stone.
9. ASTM D 2244 – Test Method for calculation of color differences from instrumentally measured color coordinates.
10. ASTM C 642 – Test method for specific gravity, absorption, and voids in hardened concrete.
11. ASTM C 39 – Test method for compressive strength of concrete cylinders.
12. ASTM C 1364 – Standard specification for architectural cast stone.

D. Testing: Test compressive strength and absorption of three specimens per 500 cubic feet at random from plant production in accordance with referenced standards.

1.3 SUBMITTALS

A. Submit for approval the following:

1. Samples of the Cast Stone specified which will be representative of the general range of color and finish to be furnished for Architect selection.
2. Three samples of color selected by the Architect to compare to existing.
3. Test results of Cast Stone previously made by the manufacturer.

B. Shop Drawings: Submit for approval the following:

1. Copies of shop drawings showing details of the stone to be provided including: profiles, cross-sections, reinforcement, exposed faces, anchoring methods, anchors, annotation of stone types and their location.
2. Unless otherwise shown on contract drawings-
   a. Provide suitable wash on all exterior sills, coping, projecting courses and pieces with exposed top surfaces.
   b. Provide drips as needed.

PART 2 PRODUCTS

2.1 MATERIALS – ARCHITECTURAL CAST STONE.

A. Physical properties: Provide the following-
   1. Compressive Strength, ASTM C 1194: 6500 psi min. for products at 28 days or;
   2. Absorption, ASTM C 1195 or
   3. ASTM C642: 6% max. for products at 28 days.
   4. Divide results of field cut specimens by .8 to determine minimum compressive strength requirements.

B. Raw materials:
   1. Portland cement – Type I or III, white and/or gray, ASTM C 150.
   2. Coarse aggregates – Granite, quartz or limestone, ASTM C 33, except for gradation.
   3. Fine aggregates – Manufactured or natural sands, ASTM C 33, except for gradation.
   4. Admixtures – ASTM C 494.
   5. Water – Potable.

2.2 COLOR AND FINISH

A. Color to be selected by architect from manufacturer's standard colors.

B. Exposed surfaces, unless otherwise specified, shall exhibit a fine grained texture similar to that of natural stone. No bugholes or air voids will be permitted.

C. Variation:
   1. Must match color and finish of approved sample subjected to similar aging and weathering conditions when viewed in direct daylight at a 10 foot distance.
   2. ASTM color variation allowed – 2% hue, 6% lightness, chroma and hue combined.

2.3 CURING AND FINISHING

A. Cure units in warm, moist curing chamber at 95% relative humidity for 24 hours, or yard cure for 350 degree-days (i.e. 7 days @ 50°F or 5 days @ 70°F) prior to shipment.

B. Acid-etch exposed surfaces to remove cement film prior to packaging for shipment.

2.4 REINFORCING

A. New billet steel reinforcing bars – ASTM A615:
   1. Reinforce units when necessary for handling and structural stresses.
   2. Reinforcement shall be galvanized or epoxy coated when covered with less than 1-1/2" of material.
   3. Area of reinforcement in panels shall be not less than ¼ of one percent of the cross section area.

2.5 RELATED MATERIALS

A. Anchors – Non-corrosive; galvanized, brass or stainless steel type 316.

B. Mortar – Type N, ASTM C 270.

2.6 PRODUCT PROFILES

A. Refer to Drawings for various profiles of cast stone.

PART 3 EXECUTION

3.1 TOLERANCES

A. Comply with Cast Stone Institute Technical Manual (current edition).

3.2 JOINTING

A. Joint size: At stone/concrete joints – ⅛".

B. Joint material:

1. Use a full bed of latex-modified thin set mortar at all bed joints.

C. Location of Joints:

1. As shown on approved shop drawings.

3.3 SETTING

A. Drench stones with clear, running water just prior to setting.

B. Fill all dowel holes and anchor slots completely with mortar or non-shrink grout.

C. Set all stones in a full bed of mortar latex-modified thin set unless otherwise detailed.

D. Tool mortar joint to allow caulk joint.

E. Sponge the face of each stone to remove excess mortar.

F. Protect stone while on ground (and after setting) from splashing, mortar and damage from other trades.

G. Protect adjacent surfaces from mortar. Promptly clean any excess mortar from all adjacent surfaces.

3.4 CLEANING AND REPAIR

A. Clean stone by wetting with clear running water and applying a solution of "Sure Clean #600" by ProSoCo Products, Inc. or equivalent. Follow manufacturer's instructions.

B. Repair obvious chips with touchup material furnished by the manufacturer.

END OF SECTION 04 73 50

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SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

B. See Structural Drawings for all structural related wood framing specifications.

1.2 SUMMARY

A. This Section includes the following:
   1. Wood blocking and nailers.
   2. Wood furring and grounds.
   3. Commercial building wrap.

B. Related Sections include the following:
   1. Division 6 Section "Shop Fabricated Wood Trusses."
   2. Division 6 Section "Interior Architectural Woodwork" for nonstructural carpentry items exposed to view and not specified in another Section.

1.3 DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise indicated.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
   1. NELMA - Northeastern Lumber Manufacturers Association.
   2. NLGA - National Lumber Grades Authority.
   3. WCLIB - West Coast Lumber Inspection Bureau.
   4. WWPA - Western Wood Products Association.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
   2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
   3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
   4. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the American Lumber Standards Committee Board of Review.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
   3. Provide dressed lumber, S4S, unless otherwise indicated.
   4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

2.2 DIMENSION LUMBER

A. General: Provide dimension lumber of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.

2.3 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including the following:
   1. Blocking.
   2. Cants.
   3. Nailers.
   4. Furring.
   5. Grounds.

B. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade SPF lumber with 19 percent maximum moisture content.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and the following species and grades:
   1. Spruce-pine-fir (south) or Spruce-pine-fir, Construction or 2 Common grade; NELMA, NLGA, WCLIB, or WWPA.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
   1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153.
   2. Where required, provide fasteners with documentation indicating they are suitable for contact with preservative treated lumber.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A, Property Class 4.6; with ASTM A 563 hex nuts and, where indicated, flat washers.

G. Headed Anchor Bolts at Sill Plates: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six (6) times the load imposed when installed in unit masonry assemblies and equal to four (4) times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
   1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
   2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.5 METAL FRAMING ANCHORS

A. General: Provide framing anchors made from metal indicated, of structural capacity, type, and size indicated, and as follows:
   1. Research/Evaluation Reports: Provide products acceptable to authorities having jurisdiction and for which model code research/evaluation reports exist that show compliance of metal framing anchors, for application indicated, with building code in effect for Project.

   2. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.6 MISCELLANEOUS MATERIALS

A. Commercial Building Wrap: Air and moisture retarder sheeting, DuPont’s Tyvek Commercial Wrap, or approved equal and complying with ASTM E 1677, Type I.
   1. Thickness: Not less than 3 mils
   2. Air Penetration: .001 cfm/ftxft
   3. Water Vapor Transmission: 28 perms minimum per ASTM E-96.
   4. Flame-Spread/Smoke Developed: Class A per ASTM E 84.
   5. Allowable Exposure Time: Not less than three months.

B. Commercial Building Wrap Tape: Pressure-sensitive plastic tape recommended by building wrap manufacturer for sealing joints and penetrations in building wrap. Use Tyvek Contractor Tape, or approved equal.

C. Commercial Building Wrap Flashing: Pressure-sensitive elastic adhesive tape recommended by building wrap manufacturer for sealing perimeters of each window and door.
   1. Use Dupont Tyvek ‘FlexWrap’ or approved equal.

D. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32-inch; selected from manufacturer's standard widths to suit width of sill members indicated.

E. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturers.

F. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

G. Ice and Water Shield: Ice and Water Shield is provided and installed under Division 7 Section “Fiberglass Shingles”.

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

C. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, 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 2006 International Building Code.
4. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; pre-drill as required.
5. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2-inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING INSTALLATION

A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

1. Fire block furred spaces of walls, at each floor level and at ceiling, with wood blocking or noncombustible materials accurately fitted to close furred spaces.

B. Furring to Receive Gypsum Board: Install 1-by-2-inch nominal-size furring vertically at 16 inches o.c.

3.4 WOOD FRAMING INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Do not splice structural members between supports.

3.5 BUILDING PAPER APPLICATION

A. Apply building paper horizontally over all roof sheathing with 2-inch overlap and 6-inch end lap; fasten to sheathing with galvanized staples or roofing nails through tin discs. Cover upstanding flashing with 4-inch overlap.

3.6 COMMERCIAL BUILDING WRAP APPLICATION

A. Cover wall sheathing with building wrap as indicated.
   1. Comply with manufacturer's written instructions.
   2. Cover upstanding flashing with 4-inch overlap.
   3. Seal vertical seams, edges, and penetrations with tape.
   4. Extend into jambs of openings and seal corners with tape.

3.7 COMMERCIAL BUILDING WRAP FLASHING

A. Seal all edges of doors and windows with building wrap flashing per manufacturer’s written recommendations.

END OF SECTION 06 10 00

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SECTION 07 21 00

THERMAL INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes board thermal insulation at roofs, perimeter foundation walls, batt thermal insulation and vapor retarder in exterior wall and roof construction, and sound attenuation batts.

1.2 SYSTEM DESCRIPTION

A. System performance to provide continuity of thermal barrier and vapor retarder at building enclosure elements in conjunction with air barrier materials in Division 07.

B. Vapor Retarder Permeance: Maximum 1 perm when tested in accordance with ASTM E96, Procedure A.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product data including thermal performance of materials.

B. Manufacturer’s Installation Instructions.

1.4 QUALITY ASSURANCE

A. Insulation Installed in Concealed Locations Surface Burning Characteristics:

1. Foam Plastic Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
2. Other Insulation: 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

PART 2 PRODUCTS

2.1 BUILDING INSULATION

A. Manufacturers:

1. Certainteed Corporation
2. Johns Manville
3. Owens Corning
4. Dow Building Solutions
5. Approved Equivalent.

2.2 COMPONENTS

A. Extruded Polystyrene Insulation: ASTM C578, closed-cell type, conforming to the following:

1. Thermal Resistance: R of 5.0 per inch (RSI of 0.87).
2. Thickness: Thickness indicated on drawings.
3. Compressive Strength: Minimum 25 psi.
4. Water Absorption: In accordance with ASTM D2842 0.3 percent by volume maximum.
5. Edges: Square edges.

6. Flame/Smoke Properties: 5-165 in accordance with ASTM E84 and UL 723.

B. Batt Insulation: ASTM C 665, preformed glass fiber batts.
   1. Facing: Unfaced.
   2. Thermal Resistance: Varies (See schedule).

C. Sound Attenuation Batts (SAB's): ASTM C665 preformed glass fiber batts, manufactured by 'Owens Corning' or equiv.
   1. Furnish unfaced, 3 ½" thick SABs installed full height, from floor to structure above, as noted in the schedule.

D. Batt Insulation: ASTM C 665, preformed glass fiber batt, manufactured by Certainteed or equivalent.
   1. Facing: Unfaced.
   2. Thermal Resistance: Varies (see schedule).

E. Adhesive: Type recommended by insulation manufacturer for application.

F. Air Barrier: As specified in Division 07.

G. Tape: Self-adhering type, recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify substrate, adjacent materials, and insulation boards are dry and ready to receive insulation and adhesive.

3.2 INSTALLATION

A. Foundation Perimeter - Board Insulation:
   1. Adhere insulation boards to foundation perimeter. Butt edges and ends tight to adjacent board and to protrusions.
   2. Alternate installation method: Install insulation board in foundation perimeter excavation. Butt edges and ends tight to adjacent boards and to protrusions and secure to wall of excavation. Excavation width must allow for width of insulation and width of foundation. Pour foundation concrete against insulation board, assuring that boards stay in place during pour.

B. Batt Insulation
   1. Install in roof spaces without gaps or voids.
   2. Fit insulation tight in spaces. Leave no gaps or voids.
   3. Install friction fit insulation tight to framing members, completely filling prepared spaces.
   4. Retain wall insulation in place with Fast-R fasteners between wall girts.

3.3 SCHEDULES

A. Foundation Insulation at Restroom enclosure: Extruded Polystyrene, 2 inch thick board.

B. Roof Insulation: Unfaced batt insulation with a minimum total R-Value of 35.

END OF SECTION 07 21 00

SECTION 07 31 13

FIBERGLASS SHINGLES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Granular surfaced fiberglass shingle roofing, underlayment, eave, valley, and ridge protection, metal flashings.

1.2 SUBMITTALS

A. Product Data: Provide data indicating material characteristics, and limitations.

B. Samples: Submit two 8” x 8” samples of each shingle color and all accessories.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Steep Roofing Manual.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Do not install ice dam membrane and shingles when ambient temperatures are below 45° F.

PART 2 PRODUCTS

2.1 ASPHALT SHINGLES

A. Manufacturer: Tamko, ‘Titan XT’, Class 3 fiberglass shingle, ‘Weathered Wood” color fiberglass based shingle or equivalent to match existing.

2.2 SHEET MATERIALS

A. Eaves and Valley Protection: CertainTeed “WinterGuard”, ASTM D 1970 sheet barrier of self-adhering rubberized asphalt membrane shingle underlayment having internal reinforcement, and “split” back plastic release film; provide material with warranty equal in duration to that of shingles being applied. CertainTeed WinterGuard Granular.

B. Maintain one copy of manufacturer’s application instructions on project site.

C. Underlayment: Asphalt-saturated organic felt underlayment, complying with ASTM D 4869, Type I, 30 lbs.

2.3 ACCESSORIES

A. Nails: Standard round wire shingle type, of hot dipped zinc coated steel, 12 gauge, 0.105 inch shank diameter, 3/8 inch head diameter, of sufficient length to penetrate through roof sheathing or ¾ inch into roof sheathing or decking.

B. Plastic Cement: ASTM D 4586, asphalt roof cement.

C. Roof Vents: Provide the following vents, manufactured by Mid-America Building Products Corp.

1. Vent: ‘Ridgemaster’

2.4 FLASHING MATERIALS

A. Sheet Flashings: ASTM A361; 24 gage steel with minimum 1.2 oz/sq. ft galvanized coating; prepainted with dark bronze color, to match soffits and fascias.

B. Bituminous Paint: Acid and alkali resistant type; black color.

2.5 FLASHING FABRICATION

A. Form flashings to profiles indicated on Drawings, and to protect roofing materials from physical damage and shed water.

B. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

C. Hem exposed edges of flashings minimum 1/4 inch on underside.

D. Apply bituminous paint on concealed surfaces of flashings.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that plumbing stacks and roof penetrations are flashed to deck surface.

B. Verify deck surfaces are dry, free of ridges, warps, or voids. Broom clean surfaces.

3.2 INSTALLATION – EAVE AND VALLEY ICE DAM PROTECTION

A. Place eave and gable edge metal flashings tight with fascia boards. Weather lap joints and seal with plastic cement. Secure flange with nails.

B. Apply rubberized asphalt/polyethylene sheet eave and valley protection in accordance with manufacturer's instructions.

C. Apply lap cement over underlayment starter strip.

D. Starting from lower edge of starter strip, lay additional 36 inch wide strips of underlayment in lap cement, to produce a two ply membrane. Weather lap plies and nail in place. Lap ends and stagger each consecutive ply.

E. Extend eave protection membrane beyond interior face of exterior wall as recommended by ice dam manufacturer.

F. Extend valley protection, both sides of valleys as recommended by ice dam manufacturer.

3.3 INSTALLATION - PROTECTIVE UNDERLAYMENT

A. Place one ply of underlayment over area not protected by eave protection, with ends and edges weather lapped and nailed. Stagger end laps of each consecutive layer.

B. Install perpendicular to slope of roof.

C. Weather lap and seal watertight with plastic cement, items projecting through or mounted on roof.

3.4 INSTALLATION - VALLEY PROTECTION

A. Place one layer of pre-finished sheet metal flashings, minimum 24 inches wide, centered over open valleys and crimped to guide water. Weather lap joints and nail in place.

B. Extend shingles on one slope across valley and fasten. Trim shingles from other slope to achieve closed cut valley, concealing the valley protection.

3.5 INSTALLATION - METAL FLASHING

A. Weather lap joints and seal weather tight with plastic cement. Secure in place with concealed fastenings.

B. Flash and seal work projecting through or mounted on roofing with plastic cement, weather tight.

3.6 INSTALLATION - RIDGE AND HIP VENTS

A. Install in accordance with manufacturer’s instructions.

B. Provide ridge vents continuous at all ridges and hip vents continuous at all hips. Install hip master starter pieces at bottom of all hips at eave edges.

C. Install connector plugs, hold-down straps and end plugs as required.

3.7 INSTALLATION - ASPHALT SHINGLES

A. Install shingles in accordance with manufacturer's instructions.

B. Provide double course of shingles at eaves.

C. Place shingles in straight coursing pattern with required weather exposure to produce double thickness over full roof area.

D. Project first course of shingles 3/4 inch beyond eave boards.

E. Extend shingles 1/2 inch beyond face of gable edge fascia boards.

F. Cap hips and ridges with individual shingles, maintaining weather exposure. Place to avoid exposed nails.

G. Install shingles over continuous ridge vents and hip vents.

H. Complete installation to provide weather tight service.

3.8 WARRANTY

A. Provide 40-year limited warranty against manufacturing defects.

B. 5 - year “SureStart” protection.

C. 10 – year algae resistance warranty.

D. 10 – year warranty against winds up to 110 mph.

END OF SECTION 07 31 13

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SECTION 07 46 00

SIDING AND SOFFITS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Prefinished aluminum soffits.

B. Vinyl siding

C. Related trim, flashings, accessories, and fastenings.

1.2 SUBMITTALS

A. Product Data: Provide data indicating materials, component profiles, fastening methods, jointing details, sizes, surface texture, finishes, accessories, and installation instructions.

B. Samples: Submit two samples 12 X 12 inch in size illustrating surface texture and color.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum of 5 years experience in manufacturing metal panels similar to those specified.

B. Installer Qualifications: Acceptable to panel manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the project site in manufacturer’s original crating, properly labeled for identification and installation purposes. Store materials in accordance with panel manufacturer’s recommendations. Handle materials carefully to avoid damage to panels and finishes.

1.5 WARRANTY

A. The Contractor shall warrant the materials to be free of faults and defects in accordance with the General conditions, except that the warranty shall be extended by paint manufacturer’s standard 20 year warranty. The warranty shall be in writing and shall be signed by the manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Firestone Elevate Building Products, or approved equiv.

B. Certainteed, Georgia Pacific or approved equivalent vinyl siding.

C. Other manufacturers seeking approval of their products must comply with requirements of the General Requirements of these specifications.

D. Other manufacturers seeking approval of their products must comply with requirements of this section.

2.2 PANEL TYPE

A. UNA-CLAD UC-500 Flush seam soffit panels, 8” wide, roll formed aluminum wall and soffit panels. Vented soffit panels shall have optional venting pattern, as noted on the drawings.

B. Vinyl siding in profile to match existing on library building.

2.3 ACCESSORIES

A. Screws: Cadmium plated box-head self-drilling tek type, non-staining, prefinished to match soffit finish.

B. Flashings: 24 ga.

2.4 FINISH

A. Prefinish Color: Kynar 500 fluropolymer paint finish, 1.0 mil total film thickness, 20 year warranty. Color shall be Sandstone including all related trims and accessories. Include optional venting pattern at vented soffits.

2.5 PANEL MATERIALS AND FABRICATION

A. Aluminum Panels: ASTM B209, aluminum association specification sheet 3003-H14/3105-H14 for painted finish. Thickness: 0.032 inch.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine the areas and conditions under which materials are to be installed and notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

B. Surfaces to receive panels shall be even, smooth, sound, clean, dry, free of ice and snow, and free from defects.

3.2 PREPARATION

A. Obtain field measurements prior to completion of manufacturing and finishing. When field measurements are not possible, provide method of installation that will allow minor adjustment in the field.

3.3 INSTALLATION

A. Install panel system plumb, level and true, in accordance with manufacturer’s instructions, final shop drawings, and SMACNA Architectural Sheet Metal manual and standard practices.

B. Install starter and edge strips before underlayment is installed.

C. Install underlayment over entire substrate to receive panel system, in shingle fashion, lapping ends and edges 6 inch minimum.

D. Completed system shall be free from overbending, deforming, stretching, distortion, waves, and buckles.

3.4 ADJUSTING AND CLEANING

A. Repair panels with minor damage. Remove panels damaged beyond repair and replace with new panels to match adjacent undamaged panels.

B. Clean exposed panel surfaces promptly after installation in accordance with recommendations of panel and coating manufacturers.

C. Remove protective film immediately after installation.

END OF SECTION 07 46 00

SECTION 07 62 00

SHEET METAL FLASHING, TRIM, AND ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes flashings, counter flashings and fabricated sheet metal items.
   1. Provide Snow Guards on Standing Seam Metal Roof
   2. Sheet Metal Flashing in Building interior not otherwise provided by the Metal Building Manufacturer

1.2 SYSTEM DESCRIPTION

A. Sheet Metal System: Conform to criteria of SMACNA “Architectural Sheet Metal Manual”.

1.3 SUBMITTALS

A. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, termination, and complete manufacturer’s installation details.

B. Samples: Submit two samples, 6 x 6 inch of each types of metal product specified illustrating material, color and finish.

1.4 QUALITY ASSURANCE

A. Manufacturer: Company specializing in Architectural/Sheet Metal Products with ten (10) years minimum experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Upon receipt of panels and other materials, installer shall examine the shipment for damage and completeness.

B. Panels should be stored in a clean, dry place. One end should be elevated to allow moisture to run off.

C. Panels with strippable film must not be stored in the open, exposed to the sun.

D. Stack all materials to prevent damage and to allow for adequate ventilation.

1.6 WARRANTY

A. Furnish 20 year manufacturer warranty for finishes. Manufacturer shall repair or replace sheet metal flashing or trim due to deterioration of finishes, including cracking, peeling and fade.

PART 2 PRODUCTS

2.1 SHEET METAL MATERIALS

A. Manufacturers: Subject to compliance with requirements, as follows:
   1. Firestone Building Products ‘Una-Clad’.
   2. Substitutions: As approved by Architect.

2.2 SHEET MATERIALS

A. Pre-coated Galvalume: ASTM A792, 24 gauge aluminum, shop pre-coated with modified silicone coating.

B. Finish color shall be selected by the Architect from manufacturer's standard colors, applied by the manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.70 to 0.90 mil over 0.25 to 0.35 mil prime coat, to provide a total dry film thickness of 0.95 to 1.25 mil. Bottom side shall be coated with primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500 finish supplier.

C. Strippable film shall be applied to the top side of the painted coil to protect the finish during fabrication, shipping and field handling. This strippable film must be removed immediately before installation.

2.3 FABRICATION

A. All exposed adjacent flashing shall be of the same material and finish as the metal panels.

B. Hem all exposed edges of flashing on underside, ½ inch.

2.4 ACCESSORIES

A. Fasteners: Same material and finish as flashing metal.

B. Sealant: Exterior and interior metal lap joint butyl or polyisobutylene sealant as specified in Section 07 90 00.

C. Plastic Cement: ASTM D4586, Type I.

2.5 FABRICATION

A. Splash Pads: Precast concrete type, of 3 foot length; minimum 3000 psi (21 MPa) at 28 days, with minimum 5 percent air entrainment. (only at downspouts not on concrete paved areas)

B. Form components to shape indicated on Drawings, accurate in size, square, and free from distortion or defects. Form pieces in longest practical lengths.

C. Fabricate cleats and starter strips of same materials as sheet to interlock with sheet.

D. Hem exposed edges on underside ½ inch; miter and seam corners. Fabricate vertical faces with bottom edge formed outward ¼ inch and hemmed to form drip.

E. Fabricate corners in one piece, 18 inch long legs; seam for rigidity, seal with sealant.

PART 3 EXECUTION

3.1 PREPARATION

A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to minimum dry film thickness of 15 mil.

3.2 INSTALLATION

A. Comply with manufacturers standard instructions and conform to standards set forth in the Architectural Sheet Metal Manual published by SMACNA, in order to achieve a watertight installation.

B. Install panels in such a manner that horizontal lines are true and level and vertical lines are plumb.

C. Do not allow panels or trim to come into contact with dissimilar materials.

D. Remove and replace any panels or components which are damaged beyond successful repair.

E. Connect downspouts to downspout boots.

F. Set splash pads under downspouts.

G. Seal joints watertight.

H. Touch-up paint all scratches, etc for consistent paint finish.

3.3 CLEANING

A. Clean any grease, finger marks or stains from the panels, per manufacturer's recommendations.

B. Remove all scrap and construction debris from the site.

END OF SECTION 07 62 00

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SECTION 07 90 00

JOINT SEALERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Preparing sealant substrate surfaces.

B. Sealant and joint backing.

1.2 SYSTEM DESCRIPTION

A. System performance to achieve moisture and air tight joint seals.

1.3 SUBMITTALS

A. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and colors available.

1.4 QUALITY ASSURANCE

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

PART 2 PRODUCTS

2.1 SEALANTS

A. Manufacturers:

1. Pecora Corporation
2. Sonneborn -Degussa Building systems.
3. Approved Equal.

2.2 SEALANTS

A. Siliconized Acrylic-Latex Sealant (Type A): ASTM C 834, single component, non–staining, non-bleeding, non-sagging; color as selected; Sonneborn SONOLAC as manufactured by Degussa Building Systems, or equivalent.

B. Silyl – Terminated Low Modulus Sealant (Type B): ASTM C920, Type S, Grade NS, Class 25, Use NT, M, A, G and O: One-part non-sagging elastomeric, color as selected, Sonolastic 150 as manufactured by Degussa Building Systems, or equivalent.

C. Polyurethane Sealant (Type C): ASTM C920, Grade P, Class 25, Use T; one part, self-leveling, limestone color, “Sonolastic SL 1,” manufactured by Degussa Building Products, or equivalent.

D. Silicone Sanitary Sealant (Type D): ASTM C920, Class 25, one-part, neutral-curing silicone, non-sagging type, non-staining, non-bleeding; USDA approval; color as selected; “Pecora 898” as manufactured by Pecora Corporation, or equivalent.

E. Butyl Sealant (Type E): ASTM C920, Grade NS, Class 25, Use as setting mastic for aluminum thresholds only; single component, solvent release, non-skinning, non-sagging, black color; “BC-158” manufactured by Pecora Corporation, or equivalent.

2.3 ACCESSORIES

A. Primer: Non-staining type as recommended by sealant manufacturer.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: As recommended by sealant manufacturer.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that substrate surfaces and joint openings are ready to receive work.

B. Remove loose materials and foreign matter which might impair adhesion of sealant.

C. Verify that joint backing and release tapes are compatible with sealant.

D. Perform preparation in accordance with ASTM C804 for solvent release and ASTM C790 for latex base sealants.

3.2 INSTALLATION

A. Clean and prime seal joints in accordance with manufacturer's instructions.

B. Install sealant in accordance with manufacturer's instructions.

C. Measure joint dimensions and size materials to achieve required width/depth ratios.

D. Install joint backing to achieve a neck dimension no greater than 1/3 the joint width.

E. Install bond breaker where joint backing is not used.

F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Tool joints concave.

3.3 SCHEDULE

Type A: Siliconized Acrylic-Latex Sealant	All interior joints not otherwise indicated.
Type B: Silyl-Terminated Low Modulus Sealant	Control and isolation joints in exterior walls; joints at perimeter of all wall penetrations such as door frames, windows, louvers, etc.; all other vertical non-traffic-bearing, exterior or weather-resisting interior joints.
Type C: Polyurethane Sealant	Isolation joints in traffic; bearing concrete paving and joints between such paving and adjacent materials.
Type D: Silicone Sanitary Sealant	Joints at restroom, kitchen fixtures and countertops.
Type E: Butyl Sealant	Setting mastic for aluminum thresholds only.

END OF SECTION 07 90 00

SECTION 08 41 13

ALUMINUM-FRAMED ENTRANCES, STOREFRONTS, AND WINDOWS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes aluminum-framed storefronts and windows including aluminum and glass doors, frames, hardware, and glazed lights.

1.2 SYSTEM DESCRIPTION

A. Aluminum-Framed Storefront System: Tubular aluminum sections with supplementary internal support framing, factory fabricated, factory finished, glass infill, related flashings, anchorage and attachment devices.

B. System Assembly: Factory unitized assembly.

C. Air Infiltration: Limit air leakage through assembly to 0.06 cfm/min/sq ft of wall area, measured at reference differential pressure across assembly of 1.57 psf as measured in accordance with AAMA 501.

D. Water Leakage: None when measured in accordance with ASTM E331.

E. System Internal Drainage: Drain water entering framing system to exterior.

F. Exterior Windows to meet AAMA Performance Class AW.

1.3 SUBMITTALS

A. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work and expansion and contraction joint location and details.

B. Product Data: Submit component dimensions; describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.

1.4 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience approved by manufacturer.

C. Design wind loading under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Nebraska.

1.5 WARRANTY

A. Furnish ten year manufacturer warranty for insulated glass and factory finishes.

PART 2 PRODUCTS

2.1 ALUMINUM-FRAMED WINDOWS AND STOREFRONTS

A. Manufacturers:

1. Kawneer Co. Inc.: 451T exterior frames, 500 wide stile doors.

2. Substitutions: Approved equivalents.

B. Product Description: Aluminum-framed storefronts and window systems, extruded aluminum, including interior systems, with aluminum and glass doors, glazing and hardware.

2.2 COMPONENTS

A. Frames: Thermally broken and Non-thermally broken extruded aluminum; flush glazing stops. Frames for interior glazing need not to be thermally broken. 4" High sills on storefront sidelight frames to be one piece, 4" extrusion, not two stacked 2" extrusions.

B. Reinforced Mullion: Profile of extruded sheet aluminum cladding with internal reinforcement of shaped structural steel section.

C. Doors:

1. 500 Wide Stile Doors: 2 inch thick, nominal 5 inch wide top rail and vertical stiles, 6 inch wide cross rail and 10 ¼ inch high bottom rail, square glazing stops.

D. Glass and Glazing: Specified in Section 08 80 00.

E. Hardware: Specified in Section 08 71 00.

F. Flashings: Minimum 0.32 inch thick aluminum to match mullion sections where exposed.

G. Steel Sections: ASTM A36/A36M, Structural shapes to suit mullion sections; galvanized.

H. Primer: Zinc chromate for factory application and field touch-up.

I. Fasteners: Stainless steel.

J. Perimeter Sealant and Backing Materials: Specified in Section 07 90 00.

K. Bituminous Coating: Fibered asphalt emulsion.

2.3 FABRICATION

A. Fabricate doors and frames allowing for minimum clearances and shim spacing around perimeter of assembly.

B. Accurately and rigidly fit and secure joints and corners, flush, hairline, and weatherproof.

C. Arrange fasteners, attachments, and jointing to ensure concealment from view.

D. Prepare components with internal reinforcement for door hardware.

2.4 SHOP FINISHING

A. Dark Bronze Anodized Aluminum Surfaces: AA-M12C22A41, Architectural Class I 0.7 mils dark bronze anodized coating conforming to AAMA 611.

B. Concealed Steel Items: Galvanized to ASTM A123/A123M; minimum 2.0 oz/sq ft coating thickness; galvanize after fabrication.

C. Apply bituminous coating to concealed aluminum surfaces in contact with cementitious or dissimilar metals.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.2 METAL PROTECTION

A. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.

B. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint or method recommended by manufacturer.

C. Where aluminum will contact pressure-treated wood, separate dissimilar materials b methods recommended by manufacturer.

3.3 INSTALLATION

A. Install doors, frames, glazing, hardware and flashings in accordance with AAMA MCWM-1 - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

B. Use anchorage devices to securely attach frame assembly to structure.

C. Self tapping screws not allowed.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Coordinate attachment and seal of air and vapor retarder materials. Pack fibrous insulation in shim spaces at perimeter of assembly and inside of frames (TAMCA FLAG) to maintain continuity of thermal barrier.

F. Install hardware using templates provided. Refer to Section 08 71 00 for installation requirements.

G. Install glass in accordance with Section 08 80 00. Glass shall be located in line with plane of adjacent door panel glazing.

H. Coordinate installation of perimeter sealants with Section 07 90 00.

I. Tolerances:

1. Variation from Plane: 1/8 inch per foot maximum or 1/4 inch per 30 feet; whichever is less.

3.4 SCHEDULE:

A. <u>Exterior Entrances Doors and Storefronts; Exterior Windows at Office and Mezzanine:</u>

Kawneer 451T framing or approved equivalent, thermally broken, dark bronze anodized finish. Doors shall be Kawneer 500 wide-stile doors as specified or approved equivalent, with crossrail, as specified, dark bronze anodized finish.

END OF SECTION 08 41 13

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SECTION 08 71 00

DOOR HARDWARE

PART 1 GENERAL

1.1 SUMMARY

A. Section includes hardware for wood, hollow steel, and aluminum, doors, thresholds, weatherstripping, seals, and door gaskets.

B. Coordinate with card readers for Electronic Strikes.

1.2 SYSTEM DESCRIPTION

A. Fire Rated Openings: Provide door hardware listed by UL or Warnock Hersey, or other testing laboratory approved by applicable authorities.

1. Hardware: Tested in accordance with NFPA 252.

1.3 SUBMITTALS

A. Shop Drawings: Indicate locations and mounting heights of each type of hardware, electrical characteristics and connection requirements.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with the following requirements:

1. ANSI A156 series.
2. NFPA 80 - Fire Doors and Windows.
3. NFPA 101 - Life Safety Code.

B. Furnish hardware marked and listed in BHMA Directory of Certified Products.

C. Maintain one copy of each document on site.

D. Coordination: Coordinate work of this section with other directly affected sections requiring integral reinforcement for door hardware.

E. Coordinate with card readers for electronic strikes.

F. Supplier: Company specializing in supplying commercial door hardware with minimum three years documented experience.

1.6 WARRANTY

A. Furnish five year manufacturer warranty for door hardware.

B. Furnish ten year manufacturer warranty for door closers.

1.7 MAINTENANCE SERVICE

A. Provide service and maintenance services of door closers for one year from Date of Substantial Completion.

B. Provide special wrenches and tools applicable to each different or special hardware component.

PART 2 PRODUCTS

2.1 DOOR HARDWARE

A. Hinge Manufacturers:
   1. McKinney.
   2. Hager.
   3. Stanley.
   4. Substitutions: As approved by the Architect.

B. Lockset, Latch Set, and Cylinder Manufacturers:
   1. Sargent
   2. Substitutions: As approved by the Architect.

C. Exit Device Manufacturers:
   1. Sargent
   2. Substitutions: As approved by the Architect.

D. Closers Manufacturers:
   1. Sargent 351 Series
   2. Substitutions: As approved by the Architect.

E. Door Controls and Overhead Holders Manufacturers:
   1. Sargent.
   2. Rixson.
   3. Glynn Johnson.
   4. Substitutions: As approved by the Architect.

F. Stops, Thresholds, Sweeps
   1. Rockwood.
   2. Pemko.
   3. National Guard.

2.2 COMPONENTS

A. General Hardware Requirements: Where not specifically indicated, comply with applicable ANSI A156 standard for type of hardware required. Furnish each type of hardware with accessories as required for applications indicated and for complete, finished, operational doors.
   1. Templates: Furnish templates or physical hardware items to door and frame manufacturers sufficiently in advance to avoid delay in Work.
   2. Reinforcing Units: Furnished by door and frame manufacturers; coordinated by hardware supplier or hardware manufacturer.
   3. Fasteners: Furnish as recommended by hardware manufacturer and as required to secure hardware.
      a. Finish: Match hardware item being fastened.
   4. Electrical Devices: Make provisions and coordinate requirements for electrical devices and connections for hardware.

B. Hinges and Pivots: ANSI A156.1, full mortise type, template type, ANSI A156.7, complying with following general requirements unless otherwise scheduled.
   1. Widths: Sufficient to clear trim projection when door swings 180 degrees.
   2. Number: Furnish minimum three hinges to 90 inches high, four hinges to 120 inches high for each door leaf.
      a. Fire Rated Doors to 86 inches High: Minimum three hinges.

C. Locksets and Latchsets: Furnish locksets compatible with specified cylinders. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts provided in metal frames.
   1. Bored (Cylindrical) Locksets and Latchsets: ANSI A156.2, Series 4000, Grade 1 unless otherwise indicated.

D. Exit Devices: ANSI A156.3, Grade 1 rim type, with push pad, unless otherwise indicated. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts provided in metal frames, with dust-proof floor strikes.
   1. Types: Suitable for doors requiring exit devices.
   2. Coordinators: Furnish overhead type at pairs of doors.

E. Cylinders: ANSI A156.5, Grade 1, 6 pin type. Match existing building cylinders.
   1. Keying: Coordinate keying requirements with NDOR District personnel.
   2. Supply keys in the following minimum quantities:
      a. 2 key blanks for each cylinder.

F. Closers: ANSI A156.4 modern type with cover, surface mounted closers; full rack and pinion type with steel spring and non-freezing hydraulic fluid; closers required for fire rated doors unless otherwise indicated.
   1. Adjustability: Furnish controls for regulating closing, latching, speeds, and back checking.
   2. Arms: Type to suit individual condition; parallel-arm closers at reverse bevel doors and where doors can swing full 180 degrees.
   3. Location: Mount closers on inside of exterior doors, room side of interior doors typical; mount on pull side of other doors.
   4. Operating Pressure: Maximum operating pressure as follows.
      a. Interior Doors: Maximum 5 pounds.
      b. Exterior Doors: Maximum 10 pound.
      c. Fire Rated Doors: As required for fire rating, maximum 15 pounds.

G. Door Controls and Overhead Holders: Furnish with accessories as required for complete operational installation.
   1. Manual Door Holders and Overhead Stops: ANSI A156.8, Grade 1 types as specified.
   2. Electro-Magnetic Door Holder: ANSI A156.15 wall mounted type.
   3. Low Energy Power Door Operators: ANSI A156.19 power mechanism opens and closes door upon receipt of signal.

H. Push/Pulls, Manual and Automatic Bolts, Protection Plates, Gaskets, Thresholds, and Trim: Furnish as indicated in Schedule, with accessories as required for complete operational door installations.
   1. Push/Pulls: ANSI A156.6; Furnish offset push-pull, push-pull plate type pulls with bolts to secure from opposite door face.
   2. Manual and Automatic Bolts: ANSI A156.16 Grade 1 top and bottom flush bolts, with dust-proof floor strike.

3. Kickplates Mop Plate, Armor Plate: ANSI A156.6, metal; height indicated in Schedule by 1 inch less than door width; stainless steel.
4. Weatherstripping: Furnish continuous weatherstripping at top and sides of exterior doors.
5. Fire Rated Gaskets: Furnish continuous fire rated gaskets at top and sides of fire rated doors.
6. Thresholds: Maximum ½ inch height; requirements to ensure accessibility for persons with disabilities.
7. Wall Stops: ANSI A156.1, Grade 1, 3 inch wall stop concave pad wall stop with no visible screws.

2.3 ACCESSORIES

A. Lock Trim: Furnish levers with rose as indicated in Schedule.

B. Through Bolts: Through bolts and grommet nuts are not permitted on door faces in occupied areas unless no alternative is possible.
   1. Do not use through bolts on solid wood core doors.

2.4 FINISHING

A. Finishes: ANSI A156.18; with following finishes except where otherwise indicated in Schedule at end of section.
   1. Hinges and Pivots:
      a. BHMA 630 and 626, satin finish.
   2. Typical Exterior Exposed and High Use Interior Door Hardware:
      a. BHMA 630, satin finished stainless steel.
      b. BHMA 626, satin chromium plated brass or bronze.
   3. Typical Interior Door Hardware:
      a. BHMA 626, satin chromium plated brass or bronze.
      b. BHMA 630, satin finished stainless steel.
   4. Typical Interior Toilet Room Door Hardware:
      a. BHMA 626, satin chromium plated brass or bronze.
      b. BHMA 630, satin finished stainless steel.
   5. Closers: Finish appearance to match door hardware on same face of door.
      a. BHMA 628, satin aluminum, clear anodized.
   6. Thresholds: Finish appearance to match door hardware on exterior face of door.
      a. BHMA 628, satin aluminum, clear anodized.
   7. Other Items: Provide manufacturer's standard finishes matching similar hardware types on same door, and maintaining acceptable finish considering anticipated use and BHMA category of finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify doors and frames are ready to receive work and dimensions are as indicated or instructed by manufacturer.

B. Verify electric power is available to power operated devices and is of correct characteristics.

3.2 INSTALLATION

A. Coordinate mounting heights with door and frame manufacturers. Use templates provided by hardware item manufacturer.

B. Mounting Heights from Finished Floor to Center Line of Hardware Item: Comply with manufacturer recommendations and applicable codes.

3.3 SCHEDULE

A. The following hardware sets are intended to establish type and standard of quality when used together with this section requirement. Examine Drawings and Specifications and furnish proper hardware for door openings.

1. MK - McKinney
2. RO - Rockwood
3. AD - Adams Rite
4. SA - Sargent
5. PE - Pemko
6. LCN – LCN Allegion

HARDWARE SET NO. 1

Doors: 001-A

Description: Exterior Aluminum Door

1 Continuous Hinge	MCK-12HD	CL	MK
1 Push / Pull	Kawneer CP-II and CO-12	CL	
1 Cylinder	41	US26D	SA
1 Deadlock/Latch	MS+1890 with 4560 Lever		AD
1 Door Closer	4040 XP	EN	LCN
1 Threshold	171A		PE
1 Sweep	3452CNB		PE
1 Floor Stop	471	US32D	RO

END OF SECTION 08 71 00

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SECTION 08 80 00

GLAZING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes glass glazing for metal frames, doors and aluminum windows.
   1. Glass glazing materials and installation requirements are included in this section for other sections referencing this section.

1.2 SYSTEM DESCRIPTION

A. System performance to achieve continuity of building enclosure air barrier and vapor retarder with glass and glazing materials of this section.

B. Structural Design: Size glass to withstand dead loads and positive and negative wind loads acting normal to plane of glass.

C. Exterior Glass Deflection: Maximum of 1/175 of glass edge length or ¾ inch, which ever is less with full recovery of glazing materials.

D. Interior Glass Deflection: Maximum thickness of glass differential deflection for two adjacent unsupported edges when 50 plf force is applied to one panel at any point up to 42 inches above finished floor.

1.3 SUBMITTALS

A. Product Data on Glass Types Specified: Submit physical and environmental characteristics, size limitations, and special installation requirements.

B. Product Data on Glazing Compounds: Submit chemical characteristics, limitations, and special application requirements. Identify available colors.

C. Shop Drawings: Signed and sealed by professional engineer.
   1. Indicate sizes, layout, thicknesses, and loading conditions for glass.

D. Design Data: Submit design calculations for glass resisting wind loads.

E. Samples: Submit two samples 12 X 12 inch in size, illustrating glass units, mirrors, coloration and design.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual, GANA FGMA Sealant Manual, and GANA Laminated Glass Design Guide for glazing installation methods.

1.5 WARRANTY

A. Furnish five year manufacturer warranty including coverage for sealed glass units from seal failure, interpane dusting, misting, and replacement of defective glass.

B. Furnish five year warranty to include coverage for delamination of laminated glass and replacement of defective glass.

PART 2 PRODUCTS

2.1 GLAZING

A. Manufacturers:
   1. PPG Industries.
   2. Libbey-Owens-Ford, Inc.
   3. Pilkington Building Products.
   4. Cardinal Glass Industries.
   5. Substitutions: As approved by Architect.

2.2 COMPONENTS

A. "Grey" Tinted tempered Low-E on 3rd surface Insulated Glass Units: Preassembled units consisting of organically sealed lites of glass separated by dehydrated air spaces complying with ASTM E 774, to be used at all exterior windows.
   1. Interspace content: Dehydrated Air.
   2. Class 1 clear unless otherwise indicated.
   3. Thickness: ¼-inch glass, ½-inch air space, 1-inch overall.
   4. Kind: FT fully tempered where indicated and required.

B. Interior Float Glass: ¼" clear glass, tempered where required.

2.3 ACCESSORIES

A. Elastomeric Glazing Sealants: Materials compatible with adjacent materials including glass, laminated glass core, insulating glass seals, and glazing channels.

B. Pre-Formed Glazing Tape: Size to suit application.
   1. Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; black color.
      a. Butyl Corner Sealant: ASTM C920 single component non-skinning butyl compatible with glazing tape; color to match tape.

C. Setting Blocks: ASTM C864 Option II, Neoprene, 80 to 90 Shore A durometer hardness.

D. Spacer Shims: ASTM C864 Option II, Neoprene, 50 to 60 Shore A durometer hardness.

E. Glazing Clips: Manufacturer's standard type.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify openings for glazing are correctly sized, within tolerance, and glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.2 PREPARATION

A. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

B. Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION

A. Perform installation in accordance with GANA Glazing Manual.
   1. Glazing Sealants: Comply with ASTM C1193.
   2. Fire Rated Openings: Comply with NFPA 80.

B. Exterior Wet/Dry Method (Preformed Tape and Sealant) Installation:
   1. Cut glazing tape to length and set against permanent stops. Seal corners by butting tape and dabbing with compatible butyl sealant.
   2. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapor seal.
   3. Place setting blocks at ¼ points.
   4. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.
   5. Fill gap between glazing and stop with elastomeric glazing sealant to depth equal to bite of frame on glazing, but not more than ⅜ inch below sight line.
   6. Apply cap bead of elastomeric glazing sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

C. Interior Wet/Dry Method (Tape and Sealant) Installation:
   1. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch above sight line.
   2. Place setting blocks at 1/4 points.
   3. Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.
   4. Install removable stops, spacer shims inserted between glazing and applied stops at 24 inch intervals, ¼ inch below sight line.
   5. Fill gaps between pane and applied stop with elastomeric glazing sealant to depth equal to bite on glazing, to uniform and level line.
   6. Trim protruding tape edge.

3.4 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

END OF SECTION 08 80 00

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SECTION 09 21 16

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes gypsum board with joint treatment; cementitious tile backer board; metal stud wall framing; metal channel furring; and acoustic insulation and sealants.

1.2 SUBMITTALS

A. Product Data: Submit data on metal framing, gypsum board, joint tape, joint compound and acoustic accessories.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.

B. Furnish framing materials in accordance with SSMA - Product Technical Information.

C. Apply acoustical sealant in accordance with applicable requirements of ASTM C919.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

A. Manufacturers:
   1. G-P Gypsum Corp.
   2. National Gypsum Co.
   3. United States Gypsum Co.
   4. Substitutions: Approved equivalents.

2.2 COMPONENTS

A. Studs and Tracks: ASTM C645 galvanized sheet steel, 18 gauge thick, C shape, with knurled faces.

B. Furring, Framing, and Accessories: ASTM C645.

C. Gypsum Board Materials: ASTM C1396/C1396M Type X fire resistant.
   1. Standard Gypsum Board: ⅝ inch thick, maximum available length in place; ends square cut, tapered edges.
   2. Cementitious Backing Board: High density, glass fiber reinforced ⅝ inch thick; 2 inch wide, coated glass fiber tape for joints and corners; Durarock manufactured by US Gypsum
   3. Water Resistant Gypsum Board: 5/8 inch thick, water resistant core and multi-layered face and back to combat moisture, maximum available length in place; ends square cut, tapered edges.

2.3 ACCESSORIES

A. Refer to Specifications Section 07 21 00.

B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.

C. Gypsum Board Accessories: ASTM C1047; metal corner beads, edge trim, and expansion joints.
   1. Metal Accessories: Galvanized steel.
   2. Edge Trim: ASTM C840; bead type.

D. Joint Materials: ASTM C475, reinforcing tape, joint compound, adhesive, and water.

E. Fasteners:
   1. Gypsum Board; ASTM C1002; Type S-12 self-drilling screws; length to suit application.
   2. Cementitious Backing Board; Durarock brand, corrosion resistant, 18 gauge, wafer head, self-drilling points, length to suit application.
   3. Water Resistant Gypsum Board; Type S-12 self drilling screws; lengths to suit applications, corrosion resistant.

F. Adhesive: ASTM C557.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions are ready to receive work.

3.2 INSTALLATION

A. Ceiling Framing:
   1. Install in accordance with ASTM C754.
   2. Coordinate location of hangers with other work. Install ceiling framing independent of walls, columns, and above ceiling work.
   3. Reinforce openings in ceiling suspension system interrupting main carrying channels or furring channels, with lateral channel bracing.
   4. Laterally brace entire suspension system.

B. Gypsum Board:
   1. Install gypsum board in accordance with GA-216.
   2. Fasten gypsum board to furring or framing with screws. Staples may only be used when securing first layer of double layer applications.
   3. Place control joints consistent with lines of building spaces as directed by Architect/Engineer.
   4. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

C. Installation of Trim and Accessories
   1. Corner Beads: Install at external corners, using longest practical lengths.
   2. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

D. Joint Treatment:
   1. Finish gypsum board in scheduled areas in accordance with levels defined in ASTM C 840 and as scheduled below.
   2. Use the following joint compound combination as applicable to the finish levels specified.
      a. Embedding and First Coat: Ready-mixed or job-mixed, drying-type, all-purpose or taping compound.
      b. Fill (Second) Coat: Ready-mixed or job-mixed, drying-type, all-purpose or topping compound.
      c. Finish (Third) Coat: Ready-mixed or job-mixed, drying-type, all purpose or topping compound.

3. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.3 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: ⅛ inch in 10 feet in any direction.

B. Tolerances: Maximum Variation from Flat Surface: ⅛ inch in 10 feet in any direction.

3.4 FINISH LEVEL SCHEDULE

A. Level 1: All concealed areas not otherwise scheduled.

B. Level 2: Substrates for tile, utility areas and areas behind cabinetry.

C. Level 5: All exposed gypsum board surfaces.

1. Where Level 5 gypsum board finish is indicated, provide a thin, uniform skim coat of joint compound over entire surface. Use joint compound specified for third coat, or a proprietary product specifically formulated for skim coating. Touch up and sand between coats and after last coat as needed to product a surface free of visual defects, tool marks, or ridges, and ready for decoration.

END OF SECTION 09 21 16

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SECTION 09 90 00

PAINTING AND COATING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and field application of paints varnishes, and other coatings.

1.2 SUBMITTALS

A. Product Data: Submit data on finishing products.

B. Samples: Submit four paper chip samples, 6 x 6 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit maintenance and cleaning instructions.

B. Provide extra materials and paints information to the Owner as follows:

1. Furnish not less than (1) unopened gallon of each paint type and color used, identified with labels describing contents.
2. Submit a complete listing of all paints used, manufacturer, and identification name and number.

1.4 QUALITY ASSURANCE

A. Surface Burning Characteristics:

1. Fire Retardant Finishes: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

B. Maintain one copy of each document on site.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Store and apply materials in environmental conditions required by manufacturer's instructions.

PART 2 PRODUCTS

2.1 MATERIALS

A. Manufacturers

1. Sherwin Williams or equivalent

B. Coatings: Ready mixed except field catalyzed coatings of good flow and brushing properties, capable of drying or curing free of streaks or sags.

C. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials required to achieve the finishes specified.

2.2 FINISHES

A. Refer to schedule at end of section for surface finish schedule. Refer to Interior Finish Schedule for color selections

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that substrate conditions are ready to receive Work.

B. Measure moisture content of porous surfaces using an electronic moisture meter. Do not apply finishes unless moisture content is less than 15 percent.

C. Correct minor defects and clean surfaces which affect work of this section.

D. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

E. Gypsum Board Surfaces: Fill minor defects with latex compounds. Spot prime defects after repair.

F. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

G. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove foreign matter. Remove oil and grease with a solution of tri-sodium phosphate, rinse well and allow to dry.

H. Uncoated Ferrous Surfaces: Remove scale by wire brushing, sandblasting, clean by washing with solvent. Apply treatment of phosphoric acid solution. Prime paint after repairs.

I. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust, power tool clean, clean surfaces with solvent. Prime bare steel surfaces.

J. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.

K. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.

L. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied.

M. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied.

3.2 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Sand transparent finishes lightly between coats to achieve required finish.

C. Where clear finishes are required, tint fillers to match wood.

D. Back prime interior and exterior woodwork scheduled to receive paint finish with primer paint.

E. Back prime interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

3.3 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

A. Refer to Mechanical and Electrical Specifications for schedule of color coding, identification banding of equipment, ductwork piping, and conduit.

3.4 CLEANING

A. As work proceeds, promptly remove finishes where spilled, splashed, or spattered.

3.5 PAINT SCHEDULE

Provide the following Sherwin Williams paint systems for the various substrates, as indicated.

Gypsum Wallboard:	1 coat Contractors Primer B28WF162 or PrepRite 200 Primer B28W200 2 coats ProMar 200 Eg-Shel B20 Series
Hollow Metal Door and Frames: Exterior Alkyd System	Touch-up primer. 2 coats Direct to Metal Alkyd S/G B55 Series
Hollow Metal Door and Frames: Exterior Waterborne System	Touch-up primer DTM Primer / Finish B66W1 2 coats DTM Acrylic S/G B66 Series
Exterior Exposed Steel (galvanized as per Section 051200)	Surface Prep of Galvanized Steel: chemically etch ('Great Lakes Laboratory' clean and etch, or equiv.) or brush blast galvanized finish. Primer: 'Tnemec' Series 27 primer, 3.4 mil thickness. Finish: 'Tnemec' Series 1075U (semi-gloss), 3 mil thickness
Concrete Counters:	Concrete Sealer per Section 03 30 00
CMU (Restroom Interior Walls)	1 coat Loxon primer / block filler 1 coat Armorseal water based epoxy primer/sealer 2 coats Pro Industrial Waterborne Acrylic

END OF SECTION 09 90 00

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