

PROJECT MANUAL
ROOFING REHABILITATION
WILL COUNTY COURTHOUSE ANNEX BUILDING
57 NORTH OTTAWA STREET
JOLIET, ILLINOIS



WJE No. 2026.1737

August 20, 2026

Architect/Engineer
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END OF SECTION

SECTION 00 11 16

INVITATION TO BID

PROJECT: Roofing Rehabilitation
Will County Courthouse Annex Building
57 North Ottawa Street
Joliet, Illinois
WJE No. 2026.1737

OWNER: Will County Illinois
302 North Chicago Street
Joliet, Illinois 60432

OWNER'S REPRESENTATIVE:
Mr. Dave Tkac
Director of Capital Programming
Will County Facilities Department
Telephone: (815)722-5515
Email: dtkac@willcountyillinois.com

CONSULTANT: Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois
Telephone: 847.272.7400
Attn: Pat Shaughnessy, email: pshaughnessy@wje.com

MANDATORY PRE-BID MEETING:

Tuesday, September 1, 2026
10:00 AM
Will County Courthouse Annex Building, main entrance

BID DUE: September 29, 2026, 11:00 A.M.

Submit sealed bids labeled "Roofing Rehabilitation-Will County Courthouse Annex Building" by the bid due date and time listed above to:

Will County Illinois
Purchasing Department
302 North Chicago Street, 2nd Floor
Joliet, Illinois 60432

RESPONSES RECEIVED AFTER THIS TIME WILL NOT BE ACCEPTED.

PART 1 - PRODUCTS - Not Used

PART 2 - EXECUTION - Not Used

END OF SECTION

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.1 AIA DOCUMENT A701-2018

- A. Refer to AIA Document A701-2018, Instructions to Bidders. Free sample previews of the document are available at www.aiacontracts.org.
- B. Supplemental Instructions
 - 1. Add following subparagraphs.
 - 2.1.3.1 Bidder is responsible for verifying visible conditions, including dimensions, materials, and attachments to remain, on existing facility. Existing conditions shown on Drawings are for information only and must be verified in field.
 - 2.1.3.2 Register for the mandatory pre-bid meeting by contacting the Will County Purchasing Department at purchasing@willcounty.gov. Pre-registration is mandatory.
 - 4.1.8 Bidders shall include time to start and length of construction period, in calendar days, for Base Bid and each Alternate.
 - 4.2.1.1 Bid security shall be 10 percent of Base Bid Total amount, in form of surety bond or cashier's check.
 - 4.2.1.2 Bidder shall execute Owner-Contractor Agreement within ten days of receipt of notice of bid acceptance and shall furnish required bonds and insurance certificates to Owner within three days thereafter, or bid security shall be forfeited to Owner as liquidated damages.
 - 4.2.2.2 Use AIA Document A310-1970 or another pre-approved form for bid bond. Bid-bond surety company is subject to Owner's approval.
 - 4.2.3.1 Bid security will be returned to all except three lowest bidders within three working days after bid opening.
 - 4.2.3.2 Remaining bid securities will be returned promptly after Owner and accepted Bidder have executed Owner-Contractor Agreement. Bidder may request return of bid security 60 days after Bid Due date if Bidder has not been notified of acceptance of Bidder's Bid.
 - 7.1.1.1 Provide performance and payment bonds for Contract Amount.

SEALED BIDS:

Sealed bids will be received in the Purchasing Department, 2nd floor, Will County Office Building, 302 N. Chicago Street, Joliet, Illinois 60432, not later than **11:00 A.M., Tuesday, September 29, 2026.**

BIDS RECEIVED AFTER THIS TIME WILL NOT BE ACCEPTED.

Sealed bids will be publicly opened and read aloud by the Will County Executive or her representative at **11:05 A.M., Tuesday, September 29, 2026**, at the Will County Office Building, 302 N. Chicago St., 2nd floor, Joliet, Illinois 60432.

Bids must be made in accordance with the instructions contained herein.

Bid forms shall be completely filled out either typewritten or in ink and shall not be detached from this binding. The **complete set of Contract Documents shall be submitted** with the proposal, in triplicate with **ONE ORIGINAL AND TWO COPIES, CLEARLY MARKED.** All Bid Forms and Specifications as attached hereto shall be used to form the Contract for the work to be performed.

Bids shall be submitted on the forms furnished by the County of Will in a sealed package, **plainly marked** with the bidder's name and address and the notation:

Sealed bid: 2026-79 Courthouse Annex Building Roof Project

Bids due: 11:00 A.M., Tuesday, September 29, 2026.

Bids shall be addressed to the Will County Purchasing Department, Will County Office Building, 302 N. Chicago St., Joliet, IL 60432.

Specifications:

Specifications are attached hereto and incorporated herein.

Tax Exemption:

PART 2 The County of Will is exempt from federal, state and municipal taxes.

Signature of Bids:

The **signature on bid documents shall** be that of an authorized representative of bidder. An officer of or agent of the offering bidder who is empowered to bind the bidder in a Contract shall sign the proposal and any clarifications to that proposal.

Each bidder, by making his bid, represents that he has read and understands the bidding documents.

Any bid not containing said signed documents shall be non-conforming and shall be rejected.

Bidding Procedures:

1. All bids must be prepared on the forms provided by the County of Will and submitted in **triplicate, including literature** in accordance with the instructions to bidders. Please put your bid deposit, bid form and prime certification paperwork at the front of your bids.
2. Unless otherwise provided in any supplement to the instructions to bidders, no bidder shall modify, withdraw, or cancel his bid or any part thereof for ninety (90) days after the time designated for the receipt of bids in the advertisement for bids.
3. Changes or corrections may be made in the bid documents after they have been issued and before bids are received. In such cases, a written addendum describing the change or correction will be issued by the County of Will to all bidders recorded by the County of Will as having received the bidding documents and will be available for inspection whenever issued. Such addendum shall take precedence over that portion of the documents concerned, and shall become part of the bid documents. Except in unusual cases, addendum will be issued to reach the bidders at least five (5) days prior to date established for receipt of bids
4. Each bidder shall carefully examine all bid documents and all addenda thereto, and shall thoroughly familiarize themselves with the detailed requirements thereof prior to submitting a bid. Should a bidder find discrepancies or ambiguities in, or omissions from documents, or should they be in doubt as to their meaning, they shall, at once, and in any event, not later than seven (7) days prior to bid due date, notify the County of Will, who will, if necessary, send written addendum to all bidders. The County of Will will not be responsible for any oral instructions. All inquiries shall be directed to the Will County Purchasing Department, in writing at purchasing@willcounty.gov. After bids are received, the vendor will make no allowance for oversight.

Bid Security:

A 10% bid bond or cashier's check made payable to the Will County Treasurer, shall accompany each bid, attached to the front cover, as a guarantee that if the bid is accepted, a contract will be entered into. **Money Orders or company checks will not be accepted.** The bid bond or cashier's check of the unsuccessful bidder will be returned after the contract has been awarded by the County Board.

PERFORMANCE BOND:

A Performance Bond for the amount of the Contract will be required from the successful bidder and shall be valid throughout the life of the Contract. The Performance Bond will be returned at the successful completion of the Contract. If it is difficult to acquire a Performance Bond by the time of the Contract is to commence, the County will accept a letter notarized by the Insurance Carrier showing that such Bond is being processed.

Non-Discrimination:

The Contractor shall at all times observe and comply with any law, statute, regulation or the like relating in any way to civil rights including but not limited to 775 ILCS 10/1, *et. seq.*

Rejection of Bids:

The bidder acknowledges the right of the County of Will to reject any bids not in compliance with the request for bids and the right to reject all bids and the right to waive any non-material irregularities in any bid received.

Default:

In case of default by the successful vendor, the County of Will may procure the articles or services from other sources and may deduct from the unpaid balance due the successful bidder any of its costs resulting from the default, or may collect against the bond or surety for excess costs so paid, and the prices paid by the County of Will shall be considered the prevailing market price at the time such acquisition is made.

No Bids:

Those who wish not to submit a bid for this project please return your bid plainly marked "**no bid**" or send email of same, so your company's name remains active in our files. If you choose not to reply your name will be removed and no future bids will be sent to your company.

Words and figures:

Where amounts are given in both words and figures, the words shall govern. If the amount is not written in words the unit cost will take precedence over the extended price in case of a discrepancy in the multiplication.

Prime Contractor Certification:

Included in this bid package is a Prime Contractor Certification form. This form **must** be filled out and returned with your bid package or it will not be accepted.

Tax Exemption:

The County of Will is exempt from Federal, State and Municipal Taxes.

Prices:

PART 3 Prices shall remain firm for 90 days once bids have been opened and are being evaluated and awarded.

Delivery:

All prices are to be delivered prices. Additional freight charges will not be accepted at the time of invoicing.

Choice of Law and Venue:

Any cause of action related to this bid, or contract related thereto, shall be governed by the laws of the State of Illinois without regard to conflict of law provisions. Venue for any cause of action related to this bid, or any contract related thereto, shall be in the Twelfth Judicial Circuit, Will County, Illinois.

ILLINOIS FREEDOM OF INFORMATION ACT:

Proposals and Submissions Subject to FOIA

Any and all submissions to the County of Will ("the County") become the property of the County and these and any late submissions will not be returned.

Your proposal will be open to the public under the Illinois Freedom of Information Act (FOIA) (5 ILCS 140) unless you request in your proposal that we treat certain information as exempt. We will not honor requests to exempt entire proposals. You must show the specific grounds in FOIA or other law or rule that support exempt treatment. [MG1.1] If you request exempt treatment, you must submit an additional copy of the proposal with exempt information deleted. This copy must tell the general nature of the material removed and shall retain as much of the proposal as possible. In the event the County receives a request for a document submitted, the County shall provide notice to contractor as soon as practicable [MG2.1]. Regardless, contractor is responsible for any costs or damages associated with defending contractor's request for exemptions. Furthermore, contractor warrants that County's responses to FOIA requests where the contractor fails to assert any applicable exemptions, will not violate the rights of any third party.

Awards Subject to FOIA

Upon acceptance of a proposal, all related records maintained by, provided to, or required to be provided to the County during the contract duration are subject to FOIA. In the event the County receives a request for a document relating to contractor, its provision of services, or the arranging for the provision of services, the County shall provide notice to contractor as soon as practicable [MG4.1] and, within the period available under FOIA, contractor may then identify those records, or portions thereof, that it in good faith believes to be exempt from production and the justification for such exemption [MG5.1]. Regardless, the contractor will be responsible for any costs or damages associated with defending the request for exempt treatment. Furthermore, contractor warrants that the County's responses to FOIA requests relating to a contractor, its provision of services, or the arranging for the provision of services, or the arranging for the provision of services, will not violate the rights of any third party.

Upon request by the County (or any of its officers, agents, employees or officials), the contractor shall provide to the County at no cost and within the timeframes of FOIA a copy of any "public record" which it may have in its possession or control, as required by FOIA.

Awarding of Bid:

The bidder acknowledges the right of the County of Will to reject any bids not in compliance with the request for bids and the right to reject all bids and the right to waive any non-material informalities or irregularities for any bid received and to accept the lowest responsible, responsive bid after all bids have been examined and evaluated.

Responsible Bidder:

All bidders must meet the Responsible Bidder requirements of the Will County Purchasing Code (Will County Board Resolution 25-267)

Bid Checklist:

All require documents listed below must be completed and returned or your bid will be rejected:

- ☐ Prime Contractor Certification Form
- ☐ 10% Bid Bond
- ☐ Completed Bid Form
- ☐ Subcontractors Form
- ☐ Bidders Resume Form
- ☐ Certificates of Insurance
- ☐ Bidder's Endorsement
- ☐ Receipt of Addenda Form

END OF SECTION

SECTION 00 41 44

BID FORM

**BID FOR: Roofing Rehabilitation-
Will County Courthouse Annex Building
57 North Ottawa Street
Joliet, Illinois**

BID FROM: _____
(Bidder's Name)

(Bidder's Address)

Date: _____, 2026

The undersigned acknowledges receipt of:

A. Project Manual and Drawings for Roofing Rehabilitation at:

Will County Courthouse Annex Building Roofing Replacement
57 North Ottawa Street
Joliet, Illinois

B. Addenda: No. _____ Dated: _____
 No. _____ Dated: _____
 No. _____ Dated: _____

C. Has examined the site and all Bidding Documents and agrees:

1. To hold these Bids open until 90 calendar days after Bid Opening Date.
2. To execute a satisfactory Agreement between Owner and Contractor within ten (10) days after notice of award.
3. To accept the provisions of the Bidding Instructions.

D. As part of the Base Bid the Bidder agrees to:

1. Provide all necessary scaffolding and staging.
2. Provide all necessary protection for public safety.
3. Provide all necessary protection of the building and property (i.e., windows, landscaping).
4. Clean all areas affected by the Work.

5. Proposes to accomplish all Work in accordance with the Contract Documents for the bid prices as outlined in the following sections.

LUMP SUM PORTION OF BASE BID

Item	Type of Work	Total Bid
L1.	Access and general conditions (including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.)	\$_____
L2.	Removal of existing modified bitumen roofing and flashings as shown in the drawings and installation of a new 60 mil white TPO roofing system and associated sheet metal flashings.	\$_____
L3.	Provide mobilization, scaffolding, and general conditions as required to access the work areas and any necessary protection to implement the above scope of work.	

ALTERNATES

Item	Type of Work	Total Bid
A1.	Demolition of chimney to level of Roof 1 parapets	\$_____

UNIT PRICE PORTION OF BASE BID

UNIT PRICES: The following Unit Prices shall govern the Base Bid and any deviations from the quantities listed in the Base Bid. Unit Prices will be applied for additional locations indicated by A/E in the field. Included in the Unit Prices shall be all labor, materials, tools, equipment, overhead and profit, for both General Contractor and involved Subcontractors, required to do the work.

Item	Type of Work	Cost
U1.	Remove and replace deteriorated wood blocking that is encountered during demolition.	\$_____ Per ft - each 2" x 4" inch layer
U2.	Remove and replace deteriorated wood blocking that is encountered during demolition.	\$_____ Per ft - each 2" x 6" inch layer
U3.	Remove and replace corroded metal deck and replace with new 22 gauge metal deck.	\$_____ Per sf
U4.	Apply rust inhibitive coating over metal deck surface corrosion.	\$_____ Per sf
U5.	Install 22 gauge flat stock sheet metal over roof deck defects	\$_____ Per 2'x2' sheet
U5.	Remove and replace wood plank roof deck, 1"x4"	\$_____ Per lin. ft

U6.	Remove and replace wood plank roof deck, 1"x6"	\$ _____ Per lin. ft
U7.	Remove and replace wet roofing insulation, in kind	\$ _____ Per sf

SUMMARY PORTION OF BID

Bid Total (Sum of Subtotals L1 through L3): \$ _____

Bid Total (in words): _____

_____ Dollars

TIME AND MATERIAL: To address changes in the work not indicated by the scope of work and upon written instruction of the Owner, the following prices shall prevail in accordance with the General Conditions.

LABOR COSTS: All trades at their prevailing hourly rate plus _____ percent (_____ %) for profit and overhead. Attach rate schedule.

MATERIAL COSTS: At cost plus _____ percent (_____ %) for profit and overhead.

CONSTRUCTION SCHEDULE

The Contractor agrees to commence work under the Contract on or before a date to be specified in a written "Notice to Proceed." It is anticipated that this project will begin in October 2026 with completion required by November 20, 2026. The Contractor proposes to complete all work within _____ calendar days (barring inclement weather and unsolvable material delays) from the date specified in the Notice to Proceed.

Failure to substantially complete the work during the Construction Time period stated above, plus any adjustments authorized by the Owner in writing, will be considered a substantial violation of the Contract.

The selected Contractor shall submit a detailed construction/work sequence schedule describing the work to be performed on an event by event basis, together with an estimate of time necessary to complete each phase of the Project.

IN SUBMITTING THIS BID, IT IS UNDERSTOOD THAT THE RIGHT IS RESERVED BY SAID OWNER TO REJECT ANY AND ALL BIDS, AND IT IS AGREED THAT THIS MAY NOT BE WITHDRAWN FOR A PERIOD OF THIRTY (30) DAYS FROM THE OPENING THEREOF.

SUBCONTRACTORS

List all subcontractors:
(This form may be copied for use in providing additional subcontractors.)

Contact: _____

Company: _____

Building: _____

Address: _____

Phone: _____

Scope of Work: _____

Contact: _____

Company: _____

Building: _____

Address: _____

Phone: _____

Scope of Work: _____

BIDDER'S RESUME

List minimum of three jobs of similar type and scope performed in the last five years:

Project 1

Owner: _____

Building: _____

Address: _____

Phone: _____

Architect/Engineer: _____

Scope of Work: _____

Contract Dollar Amount: _____

Project 2

Owner: _____

Building: _____

Address: _____

Phone: _____

Architect/Engineer: _____

Scope of Work: _____

Contract Dollar Amount: _____

Project 3

Owner: _____

Building: _____

Address: _____

Phone: _____

Architect/Engineer: _____

Scope of Work: _____

Contract Dollar Amount: _____

BIDDER'S ENDORSEMENT

The undersigned certifies that this proposal has been prepared under his personal supervision with his full knowledge.

Date _____

Firm Name _____

By _____

(Printed name of Corporation officer, Partner or sole Owner signing Proposal)

(Signature) *(Title)*

Business Address _____

Telephone _____

Attached: Bid Form Attachment 1 – Prime Contractor Certification

PRIME CONTRACTOR CERTIFICATION

The undersigned hereby certifies that

Name of Bidder
is not barred from contracting with any unit of State or local government as a result of a violation of either Section 33E-3 or 33E-4 of the Criminal Code of 1961.

Name of Bidder

Title

Signature

Date

Note: A person who makes a false certificate commits a Class 3 Felony.

Sections 33E-3 and 33E-4 provide as follows:

33E-3. Bid-rigging. A person commits the offense of bid-rigging when he knowingly agrees with any person who is, or but for such agreement would be, a competitor of such person concerning any bid submitted or not submitted by such person or another to a unit of State or local government when with the intent that the bid submitted or not submitted will result in the award of a contract to such person or another and he either (1) provides such person or receives from another information concerning the price or other material term or terms of the bid which would otherwise not be disclosed to a competitor in an independent noncollusive submission of bids or (2) submits a bid that is of such a price or other material term or terms that he does not intend the bid to be accepted.

Bid rigging is a Class 3 felony. Any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be barred for 5 years from the date of conviction from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation as provided in paragraph (2) of subsection (a) of Section 5-4 of this Code.

33E-4 Bid rotating. A person commits the offense of bid rotating when, pursuant to any collusive scheme or agreement with another, he engages in a pattern over time (which, for the purposes of this Section, shall include at least 3 contract bids within a period of 10 years, the most recent of which occurs after the effective date of this amendatory Act of 1988) of submitting sealed bids to units of State or local government with the intent that the award of such bids rotates, or is distributed among, persons or business entities which submit bids on a substantial number of the same contracts. Bid rotating is a Class 2 felony. Any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be permanently barred from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any

employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation as provided in paragraph (2) of subsection (a) **of Section 5-4 of this Code.**

Possible violations of Section 33 can be reported to the Office of the Will County State's Attorney at (815) 727-8453

END OF SECTION

SECTION 00 52 14
AGREEMENT FORM

PART 1 GENERAL

1.1 AGREEMENT FORM

- A. Owner/Contractor Agreement form is AIA Document A101-2017, Standard Form of Agreement Between Owner and Contractor. Free sample previews of the document are available at www.aiacontracts.org.
- B. Terms *Architect*, *Engineer*, and *Architect/Engineer* are used interchangeably.

END OF SECTION

SECTION 00 60 11

BONDS AND CERTIFICATES

PART 1 GENERAL

1.1 BONDS AND CERTIFICATES

- A. Furnish the following with executed Owner-Contractor Agreement.
 - 1. Performance Bond and Payment Bond: Use AIA Document A312-2010, Performance Bond and Payment Bond, or another pre-approved form.
 - 2. Certificates of Insurance: Use ACORD 25 (2016/03), Certificate of Liability Insurance, and ACORD 27 (2009/12), Certificate of Property Insurance, with AIA Document G715-2017, Supplemental Attachment, or another pre-approved form.
- B. Bond Surety Company shall be satisfactory to Owner.
- C. Include costs for bonds and insurance in Bid.
- D. Attorneys-in-Fact who sign bonds shall file with each bond a certified copy of their Power of Attorney, with effective date.

END OF SECTION

SECTION 00 72 00
GENERAL CONDITIONS

PART 1 GENERAL

1.1 GENERAL CONDITIONS

- A. General Conditions are AIA Document A201-2017, General Conditions of the Contract for Construction. Free sample previews of the document are available at www.aiacontracts.org.

END OF SECTION

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.1 SUPPLEMENTARY CONDITIONS

- A. The following supplementary conditions modify provisions of AIA Document A201-2017, General Conditions of the Contract for Construction. Free sample previews of the document are available at www.aiacontracts.org. Unaltered portions of General Conditions remain in effect.

Article 1 General Provisions

Add Subparagraphs 1.1.3.1, 1.1.3.2, 1.1.3.3, and 1.1.3.4.

*1.1.3.1 **Furnish:** Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.*

*1.1.3.2 **Install:** Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.*

*1.1.3.3 **Provide:** Furnish and install, complete and ready for intended use.*

*1.1.3.4 **Rules and Regulations** shall include conventions and agreements within construction industry that control performance of Work.*

Add Subparagraph 1.2.4.

1.2.4 Sections of Division 01 - General Requirements expand on provisions of these General Conditions and govern the execution of the Work of all sections of the Specification.

Add Subparagraph 1.4.1.

1.4.1 Where phases such as “as selected,” “as approved,” “or equal,” or “or approved equal” are used, it is understood that the selecting or approving party is the Architect/Engineer, unless another is party specifically designated by the Owner.

Add Subparagraph 1.5.3.

1.5.3 Any unauthorized use of the Instruments of Service by the Contractor, Subcontractors, Sub-subcontractors, or suppliers shall be at that party’s sole risk and that party shall indemnify Architect/Engineer for any liability or legal exposure to Architect/Engineer related to the unauthorized use.

Delete Paragraphs 1.7 and 1.8 and add the following:

1.7 —Not Used—

1.8 —Not Used—

Article 2 Owner

Delete Subparagraph 2.3.2 and add the following:

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

Article 3 Contractor

Add Subparagraph 3.1.4.

3.1.4 The Contractor is responsible for all obligations related to the Work unless the obligation is specifically attributed to the Owner.

Add the following to Subparagraph 3.2.2.

3.2.2.1 *The Contractor shall not scale drawings to determine dimensions. It is the Contractor's responsibility to verify all field dimensions or request additional information from the Architect when areas cannot be field measured.*

3.2.2.2 *The Contractor shall report to the Architect/Engineer any specified Work that, in the opinion of the Contractor, cannot reasonably be constructed as specified.*

Delete Subparagraph 3.5.2 and add the following.

3.5.2 *All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner or shall be transferrable to the Owner, shall commence in accordance with Section 9.8.4, and shall not be limited by the period for correction of work established in Paragraph 12.2.*

Add Subparagraph 3.6.1.

3.6.1 *The Owner is a tax-exempt organization and is exempt from sales tax on products permanently incorporated in the Work. When making purchases, the Contractor shall certify in writing on the invoice or sales ticket copy to be retained by the vendor that purchases were made for and on behalf of the Owner. The Contractor shall furnish copies of the invoices or sales tickets to the Owner and shall provide separate amounts for labor and materials on the monthly payment requests."*

Article 4 Architect

Delete Subparagraph 4.1.2 and add the following.

4.1.2 *Duties, responsibilities, and limitations of authority of the Architect/Engineer as set forth in the Contract Documents may be restricted, modified, or expanded by the Owner and Architect/Engineer without the consent of the Contractor. The Contractor shall be notified of any changes to the duties, responsibilities, or limitations of authority of the Architect/Engineer.*

Article 5 Subcontractors

Add Subparagraph 5.3.1.

5.3.1 *Each Subcontractor shall indemnify and hold harmless the Owner, Architect/Engineer, Architect/Engineer's consultants, and agents and employees of any of them, per Paragraph 3.18, to the extent of the Work to be performed by the Subcontractor.*

Article 9 Payments and Completion

Add Subparagraph 9.3.4.

9.3.4 *The application for payment form shall be AIA Document G702-1992, Application and Certification for Payment (or a similar form agreed upon by the Owner and Architect), supported by AIA Document G703-1992, Continuation Sheet (or a similar form agreed upon by the Owner and Architect). The first payment application shall include the Contractor's partial waiver of lien for the payment amount. Each subsequent payment application shall include the Contractor's partial waiver of lien for the payment amount and partial waivers of lien of Subcontractors and material suppliers who were included in the immediately preceding payment application, to the extent of that payment. The application for final payment shall include final waivers of lien from the Contractor, Subcontractors, and material suppliers who have not previously furnished final waivers.*

Article 10 Protection of Persons and Property

Add the following to Subparagraph 10.2.6.

The responsible person shall conduct regularly scheduled meetings with Subcontractors and, in the event of Separate Contracts, with other Contractors to promote compliance with governing safety regulations.

Add Paragraph 10.5 including Subparagraphs 10.5.1 and 10.5.2.

10.5 Use and Control of Moisture

10.5.1 The Contractor shall control moisture from construction activities or due to temporary demolition during construction and prevent such moisture from creating or contributing to conditions conducive to deterioration of materials or biological growth. This includes providing temporary weather protection of work areas to reasonably prevent weather from entering the interior or damaging components to remain.

10.5.2 The Contractor shall control water runoff and shall not allow contaminated water or debris to enter storm sewers. The Contractor shall comply with local, state, and federal laws and ordinances regarding water runoff.

Article 11 Insurance and Bonds

Add Subparagraph 11.1.4.

11.1.4 Within three (3) business days of the date the Contractor becomes aware of any impending or actual cancellation of any insurance or substantial change in coverage required by Section 11.1, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide the required coverage throughout the project duration (including statute of limitations period). Upon receipt of the notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. Alternately, the Owner shall have the right, but not the obligation, to independently obtain such insurance. In such case, the Contractor shall repay the Owner immediately upon demand the premium together with interest and all costs and expenses incurred by the Owner without prejudice to any rights or remedies of the Owner under this Agreement. At the Owner's option, all sums due the Owner may be deducted from payments due to the Contractor under this Agreement.

Article 12 Uncovering and Correction of Work

Modify Subparagraphs 12.2.2.1, 12.2.2.2, and 12.2.2.3 as follows:

12.2.2.1 Change "one year" to "two years" at one location in Line 1. Change "one-year" to "two-year" at one location in Line 7.

12.2.2.2 Change "one-year" to "two-year" at one location in Line 1.

12.2.2.3 Change "one-year" to "two-year" at one location in Line 1.

Modify Subparagraph 12.2.5 as follows:

12.2.5 Change "one-year" to "two-year" at one location in Line 2.

Add Paragraph 12.4.

12.4 In addition to complying with the requirements of the Contract Documents, the completed Work shall be watertight (i.e., no liquid water inboard of the primary waterproofing, roofing, and/or weather barrier element) for the correction period. In executing the Owner-Contractor Agreement, the Contractor represents that it is knowledgeable in the Work to be performed. It is the responsibility of the Contractor to take any and all steps necessary to provide a watertight system. Errors, inconsistencies, or omissions in the

Contract Documents or unanticipated field conditions shall be reported promptly to the Architect/Engineer under Paragraph 3.2.2, and do not relieve the Contractor of its responsibility to provide a watertight system.

Article 13 Miscellaneous Provisions

Add the following to Paragraph 13.6.

Interest shall not accrue on disputed amounts due until the Owner and Contractor have resolved such dispute.

Article 14 Termination or Suspension of the Contract

Delete Subparagraph 14.1.1.3 and substitute the following.

14.1.1.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Subparagraph 9.4.1, or because the Owner has not made payment on a Certificate for Payment certified by the Architect that is undisputed by the Owner within the time stated in the Contract Documents; or

- B. The following supplementary conditions modify provisions of AIA Document A101-2017 Exhibit A, Insurance and Bonds. Unaltered portions remain in effect.

Add the following after Subparagraph A.3.2.1:

Maintain products-completed operations coverage through statute of limitations for any Project-related claims, including warranty claims.

Add the following Subparagraph A.3.2.2.3:

General Aggregate and Per Project Aggregate endorsements shall be added to the General Liability policy.

A.3.2.2.1 Commercial General Liability \$1,000,000 each occurrence; \$2,000,000 general aggregate; \$2,000,000 aggregate for products-completed operations hazard

A.3.2.3 Automobile Liability \$1,000,000 per accident

A.3.2.6 Employer's Liability \$1,000,000 each accident; \$1,000,000 each employee; \$1,000,000 policy limit

END OF SECTION

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Description of existing conditions and Contractor duties and use of premises.

1.2 OWNER/CONTRACTOR AGREEMENT

- A. Perform Work under terms of A201 - General Conditions of the Contract for Construction, and Section 00 73 00 - Supplementary Conditions.
- B. Owner: Will County, Illinois
- C. Consultant: Wiss Janney Elstner Associates
330 Pfingsten Road
Northbrook, Illinois 60062

1.3 CONTRACTOR DUTIES

- A. Except as specifically noted, provide and pay for:
1. Labor, materials, and equipment.
 2. Tools, construction equipment, and machinery.
 3. Water, heat, power, and lights required for construction.
 4. Other facilities and services necessary for proper execution and completion of Work.
 5. Legally required sales, consumer, and use taxes. Owner's tax-exempt sales tax number is E99925737.
 6. Permits, government fees, and licenses as necessary for proper execution and completion of Work and as applicable at time of receipt of bids.
- B. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities having jurisdiction, which bear on performance of Work.
1. Take necessary safety precautions to prevent injury to construction personnel, non-construction personnel, Owner's property, and adjacent facilities.
 2. Give required notices.
 3. Products shall comply with local regulations, including environmental restrictions.
 4. Promptly submit written notice to Architect/Engineer of observed variance of Contract Documents from legal requirements. It is not the Contractor's responsibility to make certain that Drawings and Specifications comply with codes and regulations.
 - a. Propose appropriate modifications to Contract Documents for necessary changes.
 - b. Assume responsibility for Work known to be contrary to such requirements, which is performed without notice.
- C. Enforce strict discipline and good order among employees. Do not employ unfit persons or persons not skilled in their assigned tasks.
- D. Provide 24-hour emergency contact information for Contractor and major subcontractors, including names and telephone numbers.

1.4 CONTRACTOR USE OF PREMISES

- A. Confine operations at Site to areas permitted by law, ordinance, permits, and Contract Documents.
- B. Owner will occupy premises outside of Work area during construction period.
 - 1. Cooperate with Owner to minimize conflicts and facilitate Owner usage.
 - 2. Perform Work to avoid interference with Owner's day-to-day operations. Notify Owner's Representative at least 72 hours in advance of activities that will affect Owner's operations.
 - 3. Maintain vehicular, pedestrian, and emergency access to portions of facility that are in use. Keep entrances and exits clear of stored materials and construction equipment.
 - a. Short interruptions in access may be permitted if approved in advance in writing by the Owner's Representative.
 - b. Schedule deliveries to minimize interruptions.
 - 4. Do not disturb Site outside of Work area.
- C. Minimize interference with adjacent streets and walkways and adjacent facilities.
- D. Contractor shall have no additional storage or operational area outside of Work area, either inside or outside of building, except as approved in advance by Owner's Representative.
 - 1. Construction equipment, tools, etc., shall not be stored in areas of Owner's continued use.
 - 2. Do not unreasonably encumber Site with materials or equipment.
 - 3. Do not load Project structure with weight that will endanger Project structure.
 - 4. Assume full responsibility for Site security and protection and safekeeping of products stored at Site.
 - 5. Obtain and pay for additional storage areas needed for operations.

1.5 WORK SCOPE

- A. BASE BID – AREA 1
 - 1. Roof demolition
 - a. Remove and discard roofing membrane and insulation to structural wood plank deck.
 - b. Remove and discard asphalt roll roofing material on sides of two penthouses.
 - c. Repair deteriorated wood decking on a unit price basis
 - 2. Polyisocyanurate insulation
 - a. Mechanically fasten two layers of 1.5 inch polyisocyanurate over the roof deck with joints staggered and offset from underlying board joints.
 - 3. Roofing membrane
 - a. Install a 60 mil TPO membrane and flashing system. Membrane shall be induction welded to TPO coated plates as required by membrane manufacturer.
 - 4. Penthouse walls
 - a. Mechanically attach a layer of high density polyisocyanurate over wall surface.
 - b. Fully adhere a layer of 60 mil TPO over penthouse walls.
 - c. Install termination bar over top edge of membrane and intermediate termination bars as required by manufacturer.
 - d. Install drip edge flashing over top edge.
 - e. At west elevation of south penthouse, extend membrane over top and outside face of parapet prior to installation of coping cap.
 - 5. Stucco walls
 - a. Remove stucco as required to allow for a minimum 8 inch membrane flashing height above metal cap flashings.
 - b. Install termination bar and counterflashing along membrane top edge and install new stucco where existing was removed.

6. Warranty
 - a. Provide a 2-year contractor's workmanship warranty covering all defects in materials and workmanship.
 - b. Provide a 20-year manufacturer's "no dollar limit" warranty.
- B. BASE BID-AREA 2:
 1. Roof demolition
 - a. Remove and discard all membrane flashings at walls, perimeter, and equipment penetrations.
 - b. Cut roof membrane into 5'x5' sections.
 - c. Perform inspection opening within each section to inspect for moisture. If moisture is encountered, remove roofing membrane and insulation to roof deck until dry materials are encountered.
 2. Insulation installation
 - a. If wet insulation materials are found and removed, replace with tapered insulation materials in kind to create a surface flush with the surrounding roofing materials. Perform work on a unit price basis.
 3. Recovery board layer
 - a. Loose lay a layer of ½-inch dens deck over existing roofing membrane.
 - b. Mechanically fasten DensDeck layer through existing roofing into steel deck at intervals to meet wind uplift requirements.
 4. Roofing membrane
 - a. Install a 60 mil TPO membrane and flashing system. Membrane shall be induction welded to TPO coated plates as required by membrane manufacturer.
 5. Wall flashings
 - a. Install membrane flashing membrane up wall minimum 8 inches above the finished roof surface. Set top edge of membrane in sealant.
 - b. Install termination bar along top edge of membrane flashing and mechanically fasten through line of sealant behind membrane. Install sealant along top edge of termination bar.
 - c. Install counterflashings over all membrane terminations as shown in the drawings.
 6. Penthouse walls
 - a. Install new hat channels onto masonry wall and install new 26 gauge R-panel siding over south, east, and west elevations.
 7. Warranty
 - a. Provide a 2-year contractor's workmanship warranty covering all defects in materials and workmanship.
 - b. Provide a 20-year manufacturer's "no dollar limit" warranty.
- C. ALTERNATE 1
 15. Chimney Demolition
 - a. Demolish and discard brick chimney at northeast corner of Roof Area 1.
 - b. Chimney shall be level with the top of the surrounding parapets.
 - c. Over opening, install 1 inch plywood, waterproofing membrane, and sheet metal cap. Cap material shall match material, thickness, and color of new coping metal.

1.6 OWNER OCCUPANCY

- A. Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts

and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

END OF SECTION

SECTION 01 20 10

CONTRACT MODIFICATION AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for preparing, handling, and processing Contract modifications and Applications for Payment, including allowances, unit price Work, alternates, and product substitutions.

1.2 UNIT PRICE WORK

- A. Definition: Unit price, stated on the Bid Form, is the price per unit of measurement for materials and services for a specific Work activity. The Contract Sum may be increased or decreased by Unit Price adjustment, based on the difference between the estimated bid quantity and the actual Work quantity.
- B. Measurement Procedures:
 - 1. Measure Work performed on a unit price basis and maintain a record of the location and unit price quantity of each repair installed. Unless stated otherwise by the Architect/Engineer, document unit price quantities with plan view or elevation drawings, or both, and tables with required data, cross-referenced to drawings. Submit recorded information to Architect/Engineer on a weekly basis.
 - 2. Architect/Engineer will verify the accuracy of measurements and approve final quantities. Notify Architect/Engineer at least two days before Work will be performed that might make this verification difficult or impossible.
 - 3. Notify Owner's Representative and Architect/Engineer at once in writing of unit price work that deviates materially from the Unit Price basis for payment and for which an adjustment in Unit Price is desired.
 - a. Measure and quantify all such deviations, and allow Architect/Engineer to verify the accuracy of measurements, prior to performing Work that might make verification difficult or impossible.
 - b. Adjustments will be considered only if all repairs of given type have been measured and all deviations, both plus and minus, have been included in the determination of the average deviation from the Unit Price basis for payment.
- C. Payment Procedures:
 - 1. As part of Project closeout, the Contract Sum will be modified by the unit price times the variation in the actual Work quantity from the estimated quantity included in the Bid Form, based on quantities measured by the Contractor and approved by the Architect/Engineer.

1.3 ALTERNATES

- A. Description of Alternates:
 - 1. Alternate 1: Removal of existing roofing and installation of a new 60 mil white EPDM roofing membrane in lieu of the specified 90 mil membrane.
- B. Procedures:

1. Upon notification of alternates selected by the Owner, inform subcontractors of selected alternates and of changes in the Work due to selection or rejection of alternates.
2. Execute accepted alternates under the same conditions as other work of the Contract.
3. Modify or adjust affected adjacent Work as necessary to completely integrate the Work of an alternate into Project.

1.4 SUBSTITUTION PROCEDURES

A. Definitions:

1. Substitutions: Changes proposed by Contractor in products, materials, equipment, or methods of construction from those required by Contract Documents.
 - a. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - b. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

B. Submittals:

1. Substitution Requests: Submit three copies of request for consideration. Use CSI Form 13.1A or similar form. Identify product or fabrication or installation method to be replaced. Include Specification section and Drawing numbers and titles.
 - a. Provide the following information. If the following information is not provided, Architect/Engineer may return requests without action, except to record noncompliance with these requirements.
 - 1) Statement indicating why specified product, fabrication, or installation cannot be provided, if applicable.
 - 2) Product Data, including drawings and descriptions of products, and fabrication and installation procedures. Where applicable or requested, include:
 - a) Samples.
 - b) Certificates and qualification data.
 - 3) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - a) Research reports evidencing compliance with the building code in effect for Project.
 - b) Necessary approvals of public authorities having jurisdiction.
 - 4) A detailed comparison of significant qualities of proposed substitution with those of specified Work. Include an annotated copy of applicable Specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from specified Work.
 - 5) List of similar installations for completed projects with project names and addresses and names and addresses of architect/engineers and owners.
 - 6) Coordination information, including a list of changes or modifications needed to other portions of Work that will be necessary to accommodate proposed substitution.
 - 7) Cost information and a detailed comparison of Contractor's construction schedule using proposed substitution compared to specified product, including the effect on overall Contract Time. Include proposal of change, if any, in Contract Sum or Contract Time.

- 8) Contractor's certification that proposed substitution complies with requirements in Contract Documents, including specified warranty, except as indicated in substitution request; is compatible with other portions of Work and other products; and is appropriate for applications indicated and will produce indicated results.
 - a) Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturer.
 - 9) Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of the proposed substitution to produce the indicated results.
 - b. In addition, for substitutions of convenience, requested substitution must:
 - 1) Offer Owner substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect/Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - 2) Not require extensive revisions to Contract Documents.
 - c. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not less than 14 days prior to time required for preparation and review of related submittals.
 - d. Substitutions for Convenience: Architect/Engineer will consider requests for substitution if received within 60 days after Notice of Award. Requests received after that time may be considered or rejected at the discretion of Architect/Engineer.
 2. Architect/Engineer's Action: If necessary, Architect/Engineer will request additional information or documentation for evaluation within seven days of receipt of substitution request. Architect/Engineer will notify Contractor of acceptance or rejection of proposed substitution within 14 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Acceptance or rejection of proposed substitutions shall be at the sole discretion of Architect/Engineer, whose decision is final.
 - b. Accepted substitution will be incorporated into the Contract by Change Order, Construction Change Directive, or Architect/Engineer's Supplemental Instructions for minor changes in Work.
 - c. Use product specified if Architect/Engineer does not issue decision on use of proposed substitution within time allocated.
- C. Modify or adjust Work as necessary to integrate work of approved substitutions.

1.5 CONTRACT MODIFICATION PROCEDURES

- A. Minor Changes in Work: Architect/Engineer will issue supplemental instructions authorizing minor changes in Work, not involving adjustment to Contract Sum or Contract Time, on AIA Document G710, Architect's Supplemental Instructions.
- B. Proposal Requests:
 1. Owner-Initiated Proposal Requests: Architect/Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or Contract Time. The description may include supplemental or revised Drawings and Specifications.
 - a. Proposal Requests issued by the Architect/Engineer are for information only, and are not instructions to either stop Work or execute the proposed change.

- b. Within the time specified in the Proposal Request after receipt of the Proposal Request, submit adjustments to the Contract Sum and Contract Time necessary to execute change.
 2. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, propose changes by submitting a request for change to the Architect/Engineer.
 - a. Include a statement outlining reasons for the change and provide a complete description of the proposed change.
 - b. Submit adjustments to the Contract Sum and Contract Time necessary to execute the change within 21 days of becoming aware of latent or unforeseen condition. Owner will reject claims submitted later than 21 days after latent or unforeseen condition becomes known.
 3. Indicate the effect of the proposed change on the Work, and adjustments to the Contract Sum and Contract Time necessary to execute the change.
 - a. Include quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Do not include Contractor's or subcontractor's indirect expense unless it is clearly shown that the nature or extent of Work has changed from that which could have been foreseen from information in the Contract Documents. No change to Contractor's indirect expense is permitted for the selection of higher- or lower-priced materials, or systems of the same scope and nature as originally indicated.
 - e. Include an updated Construction Schedule that indicates the effect of the change, including changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of Contract Time.
 - f. Comply with requirements in Section 01 60 00 if proposed change requires substitution of one product or system for product or system specified.
 4. Use AIA Document G709, Work Changes Proposal Request, for Proposal Requests.
- C. Construction Change Directives:
 1. Architect/Engineer may issue a Construction Change Directive on AIA Document G714, Construction Change Directive, instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - a. A Construction Change Directive contains a complete description of the change in Work, including a method to determine changes in the Contract Sum and Contract Time.
 2. Maintain detailed records on time and material basis of Work required by Construction Change Directive.
 - a. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
- D. Change Order Procedures:
 1. Owner will authorize a change in the Contract by executing AIA Document G701, Change Order.
 2. Allowance Adjustment: Change Orders for allowance items will decrease allowance amounts, and have no effect on Contract Amount, until the allowance amount has been depleted.

- a. If requested, prepare an explanation and documentation to substantiate distribution of overhead costs and other margins claimed.

1.6 PAYMENT PROCEDURES

A. Schedule of Values:

1. Format and Content:
 - a. Include the following Project identification.
 - 1) Project name and location.
 - 2) Name of Architect/Engineer.
 - 3) Contractor's name and address.
 - 4) Date of submittal.
 - b. Provide a breakdown of the Contract Sum in sufficient detail to facilitate an evaluation of the Applications for Payment.
 - 1) Coordinate with Project Manual Table of Contents.
 - 2) Provide separate line items for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of Work.
 - 3) Provide separate line item for each part of Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 4) Where Work is phased, include effects of phasing in Schedule of Values.
 - 5) Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - 6) Show temporary facilities and other major cost items that are not a direct cost of actual Work-in-place, as either separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
 - 7) Round amounts to nearest whole dollar; total shall equal Contract Sum.
2. Coordinate the Schedule of Values with other administrative forms and schedules, including the Construction Schedule, submittal schedule, and application for payment forms.
3. Submit the Schedule of Values to Architect/Engineer at least two weeks before submittal of the initial Application for Payment.
4. Update and resubmit the Schedule of Values before the next Application for Payment when a Change Order results in a change in the Contract Sum.

B. Applications for Payment:

1. Payment Application Form: Use AIA Document G702 and AIA Document G703 Continuation Sheets as the form for Applications for Payment.
2. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect/Engineer and paid by Owner.
3. Application Preparation: Complete every entry on form. Notarize and execute by person authorized to sign legal documents on behalf of Contractor. Architect/Engineer will return incomplete applications without action.
 - a. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedule if revisions were made.
 - b. Include amounts of Change Orders and Construction Change Directives issued before the last day of the construction period covered by the application.
4. Submittal: Electronically submit one signed and notarized original copy of each Application for Payment to Architect/Engineer by method ensuring receipt. The application shall include waivers of lien and similar attachments if required. Send the

- submittal with a transmittal form listing attachments and recording appropriate information about the application.
5. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file mechanic's lien arising out of the Contract and related to the Work covered by payment.
 - a. Submit partial waivers on each item for the amount requested in the application, after deduction for retainage on each item.
 - b. When the application shows completion of an item, submit final or full waiver.
 - c. Execute waiver forms in a manner acceptable to Owner.
 - d. Owner reserves the right to designate which entities involved in Work must submit waivers.
 6. Application for Payment at Substantial Completion: After issuing a Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of Work claimed as substantially complete.
 - a. Include documentation supporting claim that Work is substantially complete and statement showing accounting of changes to Contract Sum.
 - b. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of Work.
 7. Final Payment Application: Submit a final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 - a. Evidence of completion of Project closeout requirements.
 - b. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 - c. Updated final statement, accounting for final changes to the Contract Sum.
 - d. AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims.
 - e. AIA Document G706A, Contractor's Affidavit of Release of Liens.
 - f. AIA Document G707, Consent of Surety to Final Payment.
 - g. Evidence that claims have been settled.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Project coordination and supervision, meetings, schedules, and photographic documentation.

1.2 COORDINATION

- A. Project has special requirements for coordinating Work because of the following conditions.
 - 1. Complex nature and phasing of Work activities.
 - 2. Partial occupancy of facility by Owner during construction period.
- B. Provide supervision, planning, scheduling, and control to perform Work and meet requirements of Contract Documents.
 - 1. Schedule and coordinate construction operations in sequence required to obtain best results where installation of one part of Work depends on installation of other components, before or after its own installation.
 - 2. Notify affected parties in writing, as necessary, of special procedures required for coordination.
 - 3. Coordinate scheduling and timing of required administrative procedures to ensure orderly progress of Work. Such administrative activities include the following:
 - a. Preparation of a construction schedule and Schedule of Values.
 - b. Installation and removal of temporary facilities and controls.
 - c. Delivery and processing of submittals.
 - d. Progress and pre-installation meetings.
 - e. Project closeout activities.
- C. Notify the Owner's Representative in writing 48 hours in advance of time when construction areas will be returned to the Owner for use or when new Work areas are required.
- D. Submit a building access plan to Owner's Representative for review and written approval at least ten working days prior to its implementation. Include locations of temporary enclosures and storage.

1.3 SUPERVISION

- A. Provide a project superintendent at the Site a minimum of eight hours per day during the progress of the Work. The superintendent shall be literate and fluent in English.

1.4 MEETINGS

- A. General:
 - 1. Schedule and conduct meetings at the Site, unless otherwise indicated.
 - 2. Notify participants, others involved, and individuals whose presence is required, of the date and time of the meeting. Notify the Owner and Architect/Engineer of scheduled meeting dates and times.

3. Agenda: Prepare a meeting agenda and distribute agenda to invited attendees.
 4. Minutes: Architect/Engineer will record significant discussions, agreements, and disagreements, and distribute the meeting minutes to concerned parties, including the Owner and Architect/Engineer, within seven days of the meeting.
- B. Pre-Construction Meeting:
1. Conduct a pre-construction meeting before Work begins. The Owner's Representative, Architect/Engineer, and responsible representatives from major subcontractors and other concerned parties shall be present. Participants shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Describe in detail when each portion of the Work is to be performed, based on the construction schedule. Discuss phasing and critical work sequencing. Subcontractors shall participate in discussion.
 3. Discuss the following:
 - a. Subcontractors, including responsibilities and personnel assignments.
 - b. Key personnel, including contact information, and their duties.
 - c. Procedures for requests for interpretations, field decisions, and change orders.
 - d. Procedures for processing Applications for Payment.
 - e. Use of premises, including office and storage areas, parking availability, and Owner's requirements.
 - f. Work hours and restrictions.
 - g. Deliveries and priorities.
 - h. Temporary facilities and controls.
 - i. Housekeeping procedures, including progress cleaning and construction waste management and recycling.
 - j. Preparation of record documents.
 4. Discuss questions that Contractor or subcontractors may have about Work or construction schedule.
 5. The Architect/Engineer will interpret the Contract Documents.
 6. The Owner's Representative will discuss partial occupancy and use of the facility during the construction and other Owner concerns.
- C. Progress Meetings: Conduct progress meetings at regular intervals.
1. The Owner's Representative, Architect/Engineer, and representatives of each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be present. Participants shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Review and correct or approve the minutes of the previous progress meeting. Review items of significance that could affect the progress of the Work. Include topics for discussion as appropriate to the status of the Project.
 3. Construction Schedule: Review the progress of the Work since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to the construction schedule. Determine how construction behind schedule will be expedited, and secure commitments from the parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - a. Review the schedule for the next period.
 4. Review present and future needs of each entity present, including the following:
 - a. Sequence of operations, interface requirements, and coordination of the Work.
 - b. Status of submittals, deliveries, and off-site fabrication.
 - c. Field observations, problems, and decisions.

- d. Quality and work standards, and status of corrective measures for deficient items.
- e. Status of payment requests, requests for interpretations, proposal requests, pending changes, Change Orders, and pending claims and disputes.
- 5. If Work is proceeding according to the construction schedule, the Architect/Engineer may cancel the next meeting.

1.5 SCHEDULES

- A. Prepare a construction schedule for the entire Work, including a complete sequence of construction by activity. The schedule shall be in the form of a horizontal bar chart, with a separate horizontal bar for each construction activity and the first workday of each week identified.
 - 1. Provide beginning and completion dates for each construction activity and phase.
 - a. Indicate the completion percentage for each activity on the first day of each month.
 - b. Indicate time periods when portions of the Site will not be available for Owner use and when stairs and elevators will be used for construction activities.
 - c. Indicate periods of interruption of utility services.
 - 2. Provide submittal dates and dates when reviewed submittals will be required.
 - 3. Provide product procurement and delivery dates.
 - 4. Provide dates for the selection of finishes.
 - 5. Provide separate sub-schedules as necessary to provide more detail for critical portions of the schedule.
- B. Submit the construction schedule to the Owner's Representative and Architect/Engineer within one week after the date of the Notice to Proceed.
- C. Update the schedule on a monthly basis or when actual construction progress deviates significantly from that shown on the current schedule.
 - 1. Show all changes that have occurred since the previous schedule was prepared, including the progress of each activity, current completion dates, and major changes in scope.
 - 2. Provide a narrative report that discusses the following items and their effects on the schedule.
 - a. Progress of each activity and current completion date, compared to the previous schedule.
 - b. Description of changes.
 - c. Problem areas, including current and anticipated delay factors.
 - d. Corrective actions taken or proposed.
 - 3. Resubmit to the Owner's Representative and Architect/Engineer.
- D. Distribute the current schedule to the job-site file, subcontractors, and other affected parties. Instruct parties to report any inability to comply and to provide a detailed explanation with suggested remedies.

1.6 PHOTOGRAPHIC DOCUMENTATION

- A. Photograph existing conditions that are important to the construction or that deviate substantially from the Contract Documents; significant conditions that will be concealed by the Work; finish surfaces that might be misconstrued as damage caused by removal or other Work operations; and immediate follow-up when on-site events result in construction damage or loss.
 - 1. Photographs shall be in focus and shall clearly show the condition.

- B. Within two days of taking photographs, submit the complete digital-image electronic file with image log to the Architect/Engineer and Owner's Representative. Submit digital images exactly as originally recorded in the camera, without alteration, manipulation, editing, or modification.
1. Submit photographs of pre-existing damage prior to beginning Work in area.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for submitting shop drawings, product data, samples, and other submittals.

1.2 SUBMITTALS

- A. General:
1. Format:
 - a. PDF Submittals: Prepare submittals as a PDF package, incorporating complete information into one PDF file for each product or material. Name each PDF file with submittal number
 2. Submittal Identification: Include the following information in each submittal.
 - a. Project name.
 - b. Date.
 - c. Names of Architect/Engineer, Contractor, subcontractor, manufacturer, supplier, and firm or entity that prepared submittal, as appropriate.
 - d. Identification information, such as the number and title of the appropriate Specification section, Drawing number and detail references, location(s) where product is to be installed, or other necessary information.
 - e. Label each submittal with the six digit Specification section number followed by a decimal point and then sequential number (e.g., 042000.01). On resubmittals, include alphabetic suffix after another decimal point (e.g., 042000.01.A).
 - f. Provide space on or beside the label or title block for the Contractor's approval stamp and the action stamp of the Architect/Engineer.
 3. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not use reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements outlined in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions, including notation of those established by field measurement.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Notation of coordination requirements.
 - e. Relationship to adjoining construction clearly indicated.
- C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. Clearly mark each copy of the submittal to show which products and options are applicable. Delete information which is not applicable. Supplement standard information with project-specific information.
 2. Include the following information, as applicable:

- a. Manufacturer's catalog cuts, product specifications, schematic drawings, installation instructions, and written recommendations.
 - b. Compliance with referenced standards.
 - c. Testing by recognized testing agency.
3. Submit the number of copies required by the Contractor plus two that will be retained by the Architect/Engineer, or digital file. Mark up and retain one returned copy as a Project Record Document.
- D. Samples: Upon request, submit physical samples to illustrate functional and aesthetic characteristics of the product, for review of materials and workmanship, for compatibility with other elements, and for comparison with the actual installed elements.
 1. Samples shall be of sufficient size to show the general visual effect.
 2. Include sets of at least three samples that show the full range of color, pattern, texture, graining, and finish.
 3. Transmit samples that contain multiple, related components, such as accessories, together in one submittal package.
 4. Identification: Attach a label on an unexposed side of each sample that includes the following:
 - a. Generic description of sample.
 - b. Product name, name of manufacturer, and sample source.
 - c. Number and title of appropriate Specification section.
 5. Samples for Initial Selection: Submit two full sets of units or sections of units from the supplier's product line, showing the full range of colors, textures, and patterns available. Architect/Engineer will retain one set and return one set with the options selected.
 6. Samples for Verification: Submit full-size units or samples of the size indicated, prepared from the same material to be used for the Work, cured and finished in the manner specified, and physically identical with material or product proposed for use, and that show the full range of color and texture variations expected.
 - a. Submit the number of samples required by the Contractor plus one that will be retained by the Architect/Engineer. Mark up and retain one returned sample as a Project Record Document.
 7. Maintain approved samples at the Site, available for quality-control comparisons during construction. Samples may be used to determine final acceptance of construction associated with the sample.

1.3 SUBMITTAL PROCEDURE

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
- B. Coordinate the preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, submittals requiring concurrent review, and related activities that require sequential activity.
 2. Allow sufficient time for submittal and resubmittal review. Failure to provide sufficient time for submittal and resubmittal reviews will not be a basis for extension of the Contract Time.
- C. Review Time:
 1. Allow seven days for the review of each submittal and resubmittal.

2. Allow additional time if coordination with subsequent submittals is required. The Architect/Engineer will advise the Contractor when the submittal being processed must be delayed for coordination.
 3. Time for review shall commence when the Architect/Engineer receives the submittal.
- D. Contractor Review:
1. Review each submittal, coordinate with other Work, and check for compliance with the Contract Documents. Verify field dimensions and conditions. Identify variations from the Contract Documents and product or system limitations that may be detrimental to the successful performance of completed Work. Note corrections.
 2. Before submitting to the Architect/Engineer, stamp or electronically mark-up, with a uniform approval stamp, including the reviewer's name; the date of Contractor's approval; and a statement certifying that the submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 3. Submittal Log: Maintain submittal log that lists submitted items per specification section. Record dates submitted, dates returned, and disposition of each item based on Architect/Engineer's review. Submit final log showing approved materials at Substantial Completion.
- E. Transmittal: Package each submittal individually and appropriately for transmittal and handling.
1. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
- F. Architect/Engineer Action:
1. Architect/Engineer will not review submittals that are received from sources other than the Contractor or that do not bear the Contractor's approval stamp, and will return them without action to the Contractor.
 2. Architect/Engineer will review each submittal for conformance with the design concept of the Project and compliance with the Contract Documents. Architect/Engineer will make marks to indicate corrections or modifications required, and stamp or electronically mark-up with an action stamp. The action stamp will include the reviewer's name, date of review, and required Contractor action. Contractor actions may include making corrections or modifications to the submittal or resubmitting the submittal, or both.
- G. Resubmittals: Make resubmittals in the same form and number of copies as the initial submittal.
1. Note the date and content of previous submittal.
 2. Note the date and content of the revision in the label or title block and clearly indicate the extent of the revision and changes made.
 3. Resubmit until the Architect/Engineer indicates that no resubmittal is required.
- H. Distribution: Furnish final copies (paper or digital) to the Site file, record documents file, manufacturers, subcontractors, suppliers, fabricators, installers, public authorities having jurisdiction, and others as necessary for performance of construction activities. Show the distribution on the transmittal forms.
- I. For construction, use only the final submittals with the Architect/Engineer's action stamp.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for temporary utilities, support facilities, and protection and controls.
- B. Pay for temporary utilities, support facilities, and protection and control measures unless otherwise indicated. Allow other entities to use temporary utilities and facilities without cost, including Owner's Representative, Architect/Engineer, subcontractors, testing agencies, and public authorities having jurisdiction.

1.2 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging and storage areas, and parking areas for construction personnel.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 GENERAL

- A. Conditions of Use:
 - 1. Locate temporary services and facilities where they will serve Project adequately and result in minimum interference with performance of Work. Coordinate locations with Owner's Representative.
 - 2. Provide temporary services and facilities ready for use when needed to avoid delay.
 - 3. Maintain temporary and existing services and facilities clean and neat, in good operating condition, and in condition acceptable to Owner's Representative.
 - 4. Relocate and modify temporary services and facilities as required by progress of Work.
 - 5. Enforce strict discipline in use of temporary services and facilities. To minimize waste and abuse, limit availability of temporary services and facilities to essential and intended uses.
 - 6. Remove temporary services and facilities when no longer needed, but no later than Substantial Completion.
 - a. Personnel remaining after Substantial Completion will be permitted to use permanent facilities under conditions acceptable to Owner's Representative.
 - b. Restore Site to condition existing before Project commencement.
 - c. Materials and facilities that constitute temporary facilities are property of Contractor.
- B. Provide temporary ladders, ramps, runways, stairs, scaffolding, staging, enclosures, hoists, rubbish chutes, and other construction aids as may be required for Work.

3.2 TEMPORARY UTILITIES

- A. Water Service: Use of Owner's existing water service will be permitted.
 - 1. Provide connections and extensions of service as required for construction operations.
 - 2. Provide additional water as necessary.
- B. Electric Power Service:
 - 1. Provide connections, extensions of service, and receptacle outlets as required for construction operations.
 - 2. As necessary, provide additional electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations. Do not overload Owner's service.
- C. Lighting: Owner will provide existing lighting at existing locations.
 - 1. Provide additional lighting, as necessary, with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 2. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 TEMPORARY FACILITIES

- A. Parking: Construction personnel shall park in off-site unless other arrangements are made in advance in writing with Owner's Representative.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel at location designated by Owner's Representative.
 - 1. Provide disposable supplies, including toilet tissue, paper towels, and paper cups. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Service toilets at least twice weekly.
 - 3. Provide wash facilities supplied with potable water at convenient locations for personnel who handle materials that require clean up. Supply cleaning compounds appropriate for each type of material handled. Dispose of drainage properly.
 - a. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
 - 4. Comply with public authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of public authorities having jurisdiction.
- D. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Construction maintenance and operation shall be in accordance with public authorities having jurisdiction.
 - 2. Locate sufficient distance from exterior walls and protect walls to prevent damage.
- E. Temporary Rubbish Chutes:
 - 1. Construct dustproof rubbish chutes on outside of structure, as required.
 - 2. Maintain chutes, and remove when no longer needed or when directed by Owner's Representative.
 - 3. Discharge chutes into trucks or suitable containers to avoid rehandling of rubbish. Spray rubbish as required to prevent dust nuisance. Remove rubbish from Site.

3.4 TEMPORARY PROTECTION AND CONTROLS

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with applicable laws, governmental rules and regulations, and public authorities having jurisdiction with regard to noise, dust, pest, and pollution control.
- B. Barricades, Warning Signs and Lights, and Traffic Controls: Provide and maintain barricades, warning signs and lights, and traffic controls. Provide traffic control as necessary for construction vehicles entering and leaving Site, and for non-construction vehicles on or near Site. Comply with requirements of public authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- C. Project Identification and Temporary Signs: Provide Project identification and other signs at locations indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
 - 1. Provide temporary directional signs for construction personnel and visitors.
 - 2. Maintain signs so they are legible at all times.
- D. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Provide portable, UL-rated fire extinguishers with class and extinguishing agent as required by locations and classes of fire exposures.
 - 2. Prohibit smoking on Site.
 - 3. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of public authorities having jurisdiction.
 - 4. Store combustible materials in approved safety containers and enclosures, away from building if possible.
 - 5. Develop and supervise overall fire-prevention and -protection program for personnel at Site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
- E. Dust and Fume Control: Prevent dust, dirt, fumes, and odors from entering occupied areas.
 - 1. Provide and maintain floor-to-ceiling dustproof partitions to limit dust, dirt, fumes, and noise migration to occupied areas.
 - 2. Filter supply air or disconnect HVAC systems in or near Work area that service occupied areas.
- F. Noise Control: Perform Work in manner to minimize noise, during hours authorized by Owner's Representative.
- G. Existing Drains:
 - 1. Verify that drains in or near Work area are open and free flowing prior to start of Work.
 - 2. Lawfully remove construction effluent from Site. Do not allow construction debris to flow into existing drains or sewer systems.
 - 3. Rout or replace clogged drain lines at completion of Work.
- H. Temporary Construction Protection:

1. Provide and secure temporary weathertight protection for in-progress exterior construction, as needed, including unfinished Work on walls and roofs.
2. Protect finished surfaces against damage. Minimize traffic on finished roof surfaces and do not use for material storage.

END OF SECTION

SECTION 01 70 10
EXECUTION OF WORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: General administrative and procedural requirements governing execution of Work, including the following:
 - 1. Examination of existing conditions.
 - 2. Preparation.
 - 3. Removal of existing construction, including salvage and reuse of materials.
 - 4. Cutting and patching.
 - 5. Installation of Work.
 - 6. Protection of installed construction.
 - 7. Correction of Work.
 - 8. Progress cleaning.
- B. Cutting and patching includes the following:
 - 1. Removal and replacement of existing construction necessary to install Work or make several parts fit properly.
 - 2. Removal and replacement of Work
 - a. That is defective;
 - b. That does not conform to requirements of Contract Documents;
 - c. To provide for installation of ill-timed Work;
 - d. To alter Work; or
 - e. To allow observation of concealed Work.
 - 3. Removal of samples of installed Work for testing.

1.2 PAYMENT

- A. Pay for cutting and patching unless requested by Architect/Engineer for Work that is not defective or nonconforming.

1.3 REFERENCES

- A. Definitions:
 - 1. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
 - 2. Existing to remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
 - 3. Patching: Fitting and repair work required to restore construction to original condition after installation of other work.
 - 4. Remove: Detach items from existing construction and legally dispose of off-site, unless indicated to be removed and salvaged or removed and reinstalled.
 - 5. Remove and reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
 - 6. Remove and salvage: Detach items from existing construction and deliver to Owner ready for reuse.

1.4 SUBMITTALS

- A. Submit plan/procedures for protecting stored materials, installed work, building, and Site.
- B. Submit, prior to beginning Work, documentation of existing conditions, including finish surfaces, which might be misconstrued as damage caused by Work.

1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect/Engineer of locations and details of cutting and await directions from Architect/Engineer before proceeding. Shore, brace, and support structural element, as necessary, during cutting and patching. Do not cut and patch structural elements in manner that could change their load-carrying capacity or load-deflection ratio.
 - 2. Other Construction Elements: Do not cut and patch other construction elements or components in manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements might include the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Equipment supports.
 - 3. Visible Elements: Do not cut and patch exposed construction in a manner that results in visible evidence of cutting and patching or in a manner that would, in Architect/Engineer's opinion, reduce building's aesthetic qualities. Remove and replace construction that has been cut and patched in visually unsatisfactory manner.

1.6 PROJECT CONDITIONS

- A. Notify Architect/Engineer of discrepancies between Drawings and existing conditions before proceeding with Work.
- B. Assume responsibility for actual condition of existing construction.

1.7 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during Contractor operations, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match adjacent surfaces to fullest extent possible.

- a. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide match acceptable to Architect/Engineer for visual and functional performance of in-place materials.
- B. Cleaning: Select cleaning materials, equipment, and methods to avoid scratching, marring, defacing, staining, or discoloring surfaces.
 - 1. Use cleaning materials and methods recommended by manufacturer of surface to be cleaned.
 - 2. Use cleaning materials on surfaces recommended by cleaning-material manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION OF EXISTING CONDITIONS

- A. Survey existing conditions and correlate with requirements indicated to determine extent of removal Work required.
 - 1. Inventory and record condition of items to be removed and salvaged or reinstalled.
- B. Document with photographs or video, or both, existing conditions of adjoining construction, including finish surfaces, which might be misconstrued as damage caused by demolition or other Work activities; existing conditions that are important to construction or that deviate substantially from Contract Documents; and significant conditions that will be concealed by Work.
- C. Examination and Acceptance of Conditions: Before proceeding with each component of Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Provide a written description of conditions detrimental to performance of the Work, including substrates and unacceptable installation tolerances, and recommend corrections.
 - 4. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.
- D. When unanticipated structural, electrical, or mechanical elements that conflict with intended function or design are encountered, investigate and measure nature and extent of conflict. Promptly submit written report to Architect/Engineer.
- E. Survey existing conditions as Work progresses to detect hazards resulting from construction.
- F. Provide access to Work areas and perform localized demolition as necessary for inspection of concealed underlying conditions by Architect/Engineer and Owner's Representative.

3.2 UTILITIES AND MECHANICAL AND ELECTRICAL SYSTEMS

- A. Disconnect and seal or cap off indicated utility services and mechanical and electrical systems in Work areas.

- B. Where existing utility services or mechanical or electrical systems are required to be removed, relocated, or abandoned, bypass such services/systems before beginning Work to prevent interruption to occupied areas.

3.3 PREPARATION

- A. Field Measurements: Take field measurements as required to fit Work properly. Recheck measurements before installing each product. Where portions of Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of Contract Documents caused by differing field conditions outside of the control of the Contractor, submit a request for information to Architect/Engineer. Include a detailed description of the problem encountered, with recommendations for changing the Contract Documents. Submit requests on CSI Form 13.2A, "Request for Interpretation."

3.4 PARTIAL REMOVAL

- A. Demolish and remove existing construction and installations only as necessary and required for proper installation of Work indicated on the Drawings and Specifications.
 - 1. Conduct removals carefully to avoid damaging existing construction and installations that will remain. Protect construction that will remain against damage and soiling. When permitted by Architect/Engineer, items may be removed to a suitable, protected storage location during removal Work and cleaned and reinstalled in original locations after removal operations are complete.
 - a. Neatly cut openings and holes plumb, square, and true to dimensions required.
 - b. Cut or drill from exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - c. Use cutting methods least likely to damage construction to remain.
 - d. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces.
 - e. Temporarily cover openings to remain.
 - 2. Provide and maintain shoring, bracing, and structural supports, as required to preserve stability and prevent movement, settlement, or collapse of construction or finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 - 3. Remedy damage to existing construction and installations caused by Contractor operations.

3.5 CUTTING AND PATCHING

- A. General: Cut in-place construction to provide for installation of other components or performance of other construction and proceed with patching after construction operations requiring cutting are complete, as required to restore surfaces to their original condition.
 - 1. Employ skilled workers to perform cutting and patching.
 - 2. Proceed with cutting and patching at earliest feasible time and complete without delay.
 - 3. Provide temporary support of work to be cut.
 - 4. Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
 - 5. Coordinate cutting and patching with use of and free passage to adjoining occupied areas.

- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using cutting machine, such as abrasive saw or diamond-core drill.
 - 4. Provide substrate suitable for installation of Work and patching.
 - 5. Notify Architect/Engineer and Owner's Representative immediately of damage to concealed elements, such as electrical conduits.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections.
 - 1. Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in manner that will minimize evidence of patching and refinishing. Provide even surface of uniform finish, color, texture, and appearance.
 - 3. Where patching occurs in painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over patch, and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
 - 4. Patch exterior building enclosure components in manner that restores enclosure to weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 INSTALLATION OF WORK

- A. General: Locate Work and components of Work accurately, in correct alignment and elevation. Make vertical work plumb and make horizontal work level.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to parties involved templates for work specified to be factory prepared and field installed. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where the size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Allow for building movement, including thermal expansion and contraction.
 - 2. Coordinate the installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous. Provide adequate ventilation during use of volatile or noxious materials.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at the time of Substantial Completion.
- B. Comply with the manufacturer's written instructions for temperature and relative humidity.

3.8 CORRECTION OF WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their condition prior to construction.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

3.9 PROGRESS CLEANING

- A. General: Clean Site and Work areas daily, including common areas. Enforce requirements strictly. Separate materials per disposal requirements and dispose of legally.
 - 1. Provide containers for waste materials, debris, and rubbish.
 - 2. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 3. Collect hazardous and unsanitary waste materials and debris in separate containers from other waste. Use containers intended for holding waste materials of type to be stored and mark containers appropriately. Remove from Site daily and dispose of legally.
 - 4. Do not bury or burn waste materials, debris, or rubbish on-site. Do not discharge or wash waste materials, debris, or rubbish down sewers or into waterways.

- B. Site: Maintain Site and surrounding areas free of waste materials, debris, and rubbish from construction operations and personnel.
- C. Work Areas: Clean areas where Work is in progress to level of cleanliness necessary for proper execution of Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of Work, broom-clean or vacuum entire work area or dampen area, as appropriate.
- D. Installed Work: Keep installed Work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at the time of Substantial Completion.
- G. Handle waste materials, debris, and rubbish in a controlled manner with as few handlings as possible. Do not throw from heights.

END OF SECTION

SECTION 01 70 20

PROJECT CLOSEOUT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for contract closeout, including final cleaning; Substantial Completion and final completion procedures; and project record documents.
- B. Related Sections:
 - 1. Divisions 02 through 08 sections for special cleaning and specific closeout requirements for Work in those sections.

1.2 SUBMITTALS

- A. Warranties:
 - 1. Organize warranty documents into orderly sequence based on table of contents of Project Manual.
 - a. Bind warranties in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - b. Scan warranties and assemble the complete warranty submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide a table of contents at the beginning of the document.
 - 2. Submit one set of binders and one scanned copy of warranty package.
 - 3. Provide additional copies of each warranty to include in maintenance manual.
- B. Product Maintenance Manual:
 - 1. Assemble complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated in the Work. Include maintenance data required in individual Specification sections, for each product and system and the following:
 - a. Manufacturer's address and product information, cross-referenced to Specification section number and title.
 - 1) Include project-specific product details, such as color, pattern, texture, and material and chemical composition.
 - 2) Include re-ordering information for specially manufactured products.
 - 3) For manufacturers' standard printed data, include only sheets pertinent to product installed. Mark each sheet to identify each product incorporated into the Work. If data include more than one item, identify each item using appropriate references from Specification sections. Identify data applicable to the Work and delete references to information not applicable.
 - b. Name, address, and telephone number of Installer or supplier.
 - c. Maintenance and service schedules for preventive and routine maintenance.
 - d. Maintenance procedures, and maintenance materials and sources.
 - e. Maintenance record forms.
 - f. Copies of maintenance service agreements and warranties.

PART 2 PRODUCTS

2.1 MATERIALS

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

PART 3 EXECUTION

3.1 FINAL CLEANING

- A. General: Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. Return adjacent surfaces and areas to condition existing before Work began.
 - 1. Remove tools, construction equipment, machinery, and surplus material from Site.
 - 2. Clean Site, yard, and grounds, including landscaped areas, of rubbish, waste materials, litter, and other foreign substances.
 - a. Broom clean paved areas. Remove petrochemical spills, stains, and other foreign deposits.
 - b. Rake grounds that are neither planted nor paved to smooth, even-textured surface.
 - 3. Clean exposed exterior and interior hard-surfaced finishes to dirt-free condition, free of stains, films, and similar foreign substances. Polish surfaces to achieve specified finish. Avoid disturbing natural weathering of exterior surfaces.
 - a. Touchup and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that show evidence of repair or restoration.
 - 1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.
 - 4. Clean and restore transparent and reflective surfaces, such as mirrors and glass in doors and windows, to their original condition. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - 5. Remove labels that are not permanent.
 - 6. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - 7. Sweep floors broom clean. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - 8. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove paint and mortar droppings and other foreign substances.
 - 9. Leave Project clean and ready for occupancy.

3.2 SUBSTANTIAL COMPLETION

- A. Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
 - 1. Prepare punch list, value of items on list, and reasons why Work is not complete.
 - 2. Deliver tools, spare parts, extra materials, and similar items to location designated by the Owner's Representative. Label with manufacturer's name and model number where applicable.

3. Terminate and remove temporary facilities from Site, along with mockups, construction tools, and similar elements.
4. Complete final cleaning requirements, including touchup painting.
5. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

3.3 FINAL COMPLETION

- A. Before requesting final inspection for determining final completion, complete the following:
 1. Submit copy of Architect/Engineer's Substantial Completion inspection punch list, endorsed and dated by Architect/Engineer, with statement that items on punch list have been completed or otherwise acceptably resolved.
 2. Instruct Owner's personnel in maintenance of products installed.
- B. Request final inspection. On receipt of request, Architect/Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements.
 1. Request re-inspection when Work identified in previous inspections as incomplete is completed or corrected.

3.4 PROJECT RECORD DOCUMENTS

- A. During Work, maintain one set of prints of Drawings and reviewed shop drawings, Specifications, and product data for recording deviations of as-built construction from design information. Include addenda and Contract modifications.
 1. Accurately document and record changes and modifications as soon as possible after they occur, in understandable manner.
 2. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Record and check markup before enclosing concealed installations.
 3. Include:
 - a. Dimensional changes.
 - b. Revisions to Drawing details and details not on Drawings.
 - c. Changes made by Change Order or Architect/Engineer's written orders. Note Change Order numbers or similar identification.
 - d. Field records for variable and concealed conditions.
 - e. Record information on Work that is shown only schematically or omitted from Drawings.
 - f. Actual products and materials used.
 - 1) Include product data, specifically marked for Project, and cross-referenced to Specifications, Drawings, and Change Orders.
 - 2) Include names of manufacturer and Installer, and other information necessary to provide record of selections made.
 - 3) Include significant changes in product delivered to Site and changes in manufacturer's written instructions for installation.
 4. Mark record document most capable of showing actual physical conditions completely and accurately. Cross-reference on other record documents.
 5. Mark record documents with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of Work at the same location.
- B. Store Record Documents and samples in field office apart from Contract Documents used for construction. Do not use Record Documents for construction purposes. Maintain Record Documents in good order and in clean, dry, legible condition, protected from deterioration and

loss. Provide access to Record Documents for Architect/Engineer's reference during normal working hours.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Supply and construction of wood framing and miscellaneous wood construction.

1.2 REFERENCES

- A. Abbreviations:
 - 1. ALSC: American Lumber Standard Committee.
 - 2. APA: APA - The Engineered Wood Association.
 - 3. OSB: Oriented-strand board.
- B. Definitions:
 - 1. Rough carpentry: Carpentry Work that is not exposed; that is, concealed by other construction.
- C. Reference Standards: Latest edition as of Specification date.
 - 1. American Lumber Standard Committee (ALSC):
 - a. PS 20: Voluntary Product Standard, American Softwood Lumber Standard.
 - 2. American National Standards Institute (ANSI)/American Wood Council (AWC):
 - a. National Design Specification for Wood Construction (ANSI/AWC NDS).
 - 3. American National Standards Institute (ANSI)/ASME - The American Society of Mechanical Engineers (ASME):
 - a. ANSI/ASME B18.6.1: Wood Screws (Inch Series).
 - 4. American Wood Council (AWC):
 - a. WCD 1 - Details for Conventional Wood Frame Construction.
 - 5. American Wood Protection Association (AWPA):
 - a. M4: Standard for the Care of Preservative-treated Wood Products.
 - b. T1: User Category System: Processing and Treatment Standard.
 - c. U1: Use Category System: User Specification for Treated Wood.
 - 6. APA-The Engineered Wood Association (APA):
 - a. Engineered Wood Construction Guide (Construction Guide).
 - b. PRP-108: Performance Standards and Qualification Policy for Structural-Use Panels.
 - 7. ASTM International:
 - a. A653/A653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
 - b. A666: Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - c. D3498: Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems.
 - d. F1667: Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

1.3 SUBMITTALS

- A. Product Data:
 - 1. Dimension Lumber: Species, grading, and intended use of lumber proposed for use on Project; by grading agency accredited by ALSC Board of Review. Clearly note requested substitutions that differ from those specified.
 - 2. Treated Wood:
 - a. Chemical treatment manufacturers' literature, including:
 - 1) Compliance with requirements.
 - 2) Written instructions for handling, storing, installing, and finishing treated wood.
 - 3) Written requirements for corrosion protection of fasteners and connectors to be in contact with treated wood.
 - 4) Copies of warranties for each type of treatment.
 - b. Certification by treating plant that treated wood complies with requirements.
 - 1) Indicate type of preservative used and net amount of preservative retained.
 - 2) For treatments requiring drying after treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Site.
 - c. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.
 - 3. Fabricated Products: manufacturer's literature indicating conformance with requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials to prevent damage to materials or structure.
- B. Deliver materials to Site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.
- C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, and installation. Reject and remove from Site new materials which exhibit evidence of moisture damage.
- D. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer.
- E. Stack lumber, plywood, and other panels. Protect from water and weather. Place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.
- F. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.
- G. Conspicuously mark damaged materials and damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.

1.5 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to start of rough carpentry Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract

Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.

- B. Comply with Owner's limitations and restrictions for Site use and accessibility.
- C. Handle and install materials in strict accordance with safety requirements required by manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

1.6 CHANGES IN WORK

- A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
 - 1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

PART 2 PRODUCTS

2.1 DIMENSION LUMBER

- A. General: ALSC PS 20; provide lumber of nominal sizes shown on Drawings.
 - 1. Grade: Per applicable rules of lumber grading agency accredited by ALSC Board of Review. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2 inch nominal thickness or less, unless otherwise indicated.
- B. Wood Nailers and Planks: Southern pine, No. 1 grade or better.

2.2 AUXILIARY MATERIALS

- A. Miscellaneous Lumber: Provide lumber for support or attachment of other construction, including rooftop equipment bases and support curbs, blocking, cants, nailers, and furring.
 - 1. Construction grade or better, with 19 percent maximum moisture content.
- B. Fasteners: ANSI/AWC NDS.
 - 1. Masonry Substrate: Stainless steel with hex washer head.
 - a. 410 Stainless Steel Tapcon manufactured by ITW Red Head, Inc.
 - b. 304 Stainless Steel Tapper, 1/4 inch diameter with hex washer head, manufactured by Powers Fasteners.
 - c. 1-3/4 inch minimum length, or as noted on details.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with framing Subcontractor for compliance with requirements and other conditions affecting installation or performance of rough carpentry Work.
 - 1. Ensure that work done by other trades is complete and ready for rough carpentry Work.
 - 2. Verify that areas and conditions under which rough carpentry Work is to be performed permit proper and timely completion of Work.
 - 3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of rough carpentry Work and recommend corrections.
 - 4. Do not proceed with rough carpentry Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
 - 5. Commencing rough carpentry Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

- A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.
- B. Prevent construction debris, coatings, and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.
- D. Limit access to Work areas.
- E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.
- F. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 INSTALLATION, GENERAL

- A. Install wood construction according to Drawings and Specifications, and minimum requirements of local building code. Notify Architect/Engineer of deviations between Drawings and Specifications and minimum code requirements.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
 - 1. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.
 - 2. Locate nailers, blocking, planke, and similar supports to comply with requirements for attaching other construction.
- C. 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.

1. Do not splice structural members between supports unless indicated otherwise on Drawings.
- D. Securely connect rough carpentry and attach to substrate as indicated on Drawings.
 1. Make tight connections between members.
 2. Space and install fasteners without splitting wood.
 3. 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.
 4. For hardware, anchors, and connectors, use fasteners in all holes per manufacturer's recommendations unless indicated otherwise.
 5. Lag screws: Pre-drill holes to diameter at base of threads and length equal to embedment.
 6. Bolts: Drill holes 1/16-inch larger in diameter than bolts used. Drill straight and true from one side only. Use washers under head and nut.

3.4 WOOD SLEEPER, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated on Drawings and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading.
 1. Recess bolts and nuts flush with surfaces unless otherwise indicated.
 2. Build anchor bolts into masonry during installation of masonry work.
 3. Where possible, secure anchor bolts to formwork before concrete placement.

3.5 FIELD QUALITY CONTROL

- A. Architect/Engineer may observe in-progress construction for quality and conformance with Construction Documents. Notify Architect/Engineer of Work progress at least weekly.

3.6 CLEANING

- A. At the end of each workday, clean Site and Work areas and place debris and rubbish in appropriate containers.
- B. After completing rough carpentry Work, clean up debris and surplus materials and remove from Site.

3.7 PROTECTION

- A. Protect installed rough carpentry from damage due to exposure to harmful weather, physical abuse, and other causes. Temporary cover rough carpentry Work exposed to weather as soon as practical after installation to prevent deterioration from wetting.

END OF SECTION

SECTION 07 42 13
METAL PANEL SYSTEM

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Furnish all labor, materials, tools and equipment and perform all Work necessary for and incidental to providing and installation of a complete preformed metal panel rainscreen wall system on the south, east, and west sides of the Roof Area 2 penthouse as shown on the Drawings and as specified herein.
- B. Work of this section shall include:
 - 1. Uninsulated steel panel system complete with exposed attachment system, to be installed on the Area 2 penthouse.
- C. The Contractor shall be responsible for obtaining and verifying all dimensions necessary to perform and prefabricate wall panels in the shop. Any dimensions given in the drawings referring to existing construction were taken from the original construction documents and are provided for information only. These dimensions should be considered approximate.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Section 07 52 16 - SBS-Modified Bitumen Membrane Roofing
- B. Section 07 62 00 - Sheet Metal Flashing and Trim
- C. Section 07 92 00 - Joint Sealants

1.3 SYSTEM DESCRIPTION

- A. The panel system shall consist of exterior metal panels, anchors, fastening devices, trim, and accessories.

1.4 REFERENCES

- A. Except as modified by this specification, comply with the applicable provisions of the following codes, standards and specifications (latest edition).
 - 1. Architectural Aluminum Manufacturers Association (AAMA)
 - 2. American Society for Testing Materials (ASTM)
 - a. E85-91a Surface Burning Characteristics of Building Materials
- B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances and regulations of Federal, State and municipal authorities having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Qualifications
 - 1. The following experience criteria must be met:

- a. Panel Erector: 5 years' experience in erection of this type of system. Panel erectors are to be manufacturer approved installers.

1.6 PERFORMANCE REQUIREMENTS

A. Provision for Thermal Movements

1. Wall panel systems shall be designed to provide for such expansion and contraction of component materials as will be caused by a surface temperature ranging from -20°F to 180°F without causing buckling, failure of joint seals, undue stress on structural elements including permanent set, damaging loads on fasteners, reduction of performance, or other detrimental effects including distortions.

B. Provision for Building Alignment

1. The wall panel system shall be designed to accommodate a 2 in. variance in vertical building alignment (+/- 1 in. about an established neutral plane).

C. Provision for Movement of the Structure

1. The work shall be designed to accommodate dead load and live load deflection, creep, and/or sway and torsion of the building as follows:
 - a. Design for a differential live load vertical movement of $\pm \frac{1}{2}$ in
 - b. Design for interstory differential lateral movement as specified under the current edition of the Building Code.

D. Structural Properties

1. Wall panel systems shall be designed to withstand the following wind loads acting normal to the plane of the wall:
 - a. 47 psf outward/inward for all walls including corner conditions.
2. The deflection of wall panel in a direction normal to the plane of the wall when subjected to a uniform load deflection test at design pressures or when subjected to design wind loads in the field as specified above, and as applied in accordance with ASTM E72 shall not exceed L/180.

1.7 SUBMITTALS

A. Submit the following in accordance with the provisions of the Contract Requirements.

1. Shop Drawings: Drawings shall show scale elevations and details shall be at full scale as far as practical. Drawings shall include all parts of the work, including metal thicknesses, methods of joining, details of all field connections and anchorage, fastening and sealing methods, metal finishes and all pertinent information. Relationship to other work shall be clearly indicated. No work shall be fabricated until shop drawings for that work have been reviewed by the Architect/Engineer.
2. Samples: Before any work is fabricated, the following samples, properly identified, shall be submitted to the Architect/Engineer for review:
 - a. One complete assembly of system of sufficient size to show the following:
 - 1) Attachment to existing structure
 - 2) Substructure and attachment(s)
 - 3) All trim
 - 4) Panel joinery
3. Structural Calculations: Copies of all structural calculations made by Structural Engineer licensed in the State of Missouri shall be submitted to the Architect/Engineer for review and comment.

4. Quality Control Program: Manufacturer's Quality Control Manual including responsibility, fabrication and installation tolerances and inspection program.
5. Finish color samples: Contractor to provide standard color samples for Owner approval.

1.8 WARRANTY

- A. The panel erector warrant the total replacement wall system for a period of five (5) years from the date of final acceptance of the project, that the work is not defective in workmanship or materials, and the Contractor shall promptly make corrections at no cost to the Owner. This warranty applied to both patent and latent defects but does not include damage caused by unusual abuse or neglect.
- B. All exterior painted finishes shall carry a minimum 20-year guarantee.

1.9 NON-REIMBURSEMENT FOR SPECIAL PROVISIONS

- A. If variations in the building frame, or if variations within permissible tolerances leave insufficient clearance for proper anchorage, necessitating extra fabrication or installation work by the Contractor in order to install the wall in a manner acceptable to the Architect/Engineer, he shall not be reimbursed the extra costs involved. Variations are to be determined by the Contractor and approved by the Architect/Engineer before shop drawing work in the affected area has been processed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: McElroy Metal R-Panel:
 1. Profile: Ribs 1.25" deep, spaced 12" on center with two intermediate stiffening beads.
 2. Size: 36" cover width, lengths indicated on drawings.
- B. Trim: As recommended by panel manufacturer.
- C. Substructure:
 1. Steel Sheet Miscellaneous Framing Components: ASTM C 645, with ASTM A 653/A 653M, hot-dip galvanized zinc coating.
- D. Panel Fasteners: Self-tapping screws with EPDM grommets and other acceptable corrosion-resistant fasteners with heads matching color of metal panels by means of factory-applied coating, as recommended by panel manufacturer.
- E. Single Source Responsibility for Wall Panel System
 1. All wall panels, trim, attachments and accessories are to be manufactured by a single manufacturer and installed by a single manufacturer certified erector to establish an undivided, single source responsibility for the work, which includes the entire wall panel system.

2.2 MATERIALS

- A. Material: Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; 26-gauge sheet thickness.

- B. Field repairs of minor defects: To be performed by approved paint applicators at the direction of McElroy. Paint system is to match coating system provided, or as recommended by McElroy to maintain 20-year warranty on all metal components.
- C. Panel Fasteners: Self-tapping screws and other acceptable corrosion-resistant fasteners with EPDM or neoprene gaskets, with heads matching color of metal panels by means of factory-applied coating recommended by metal panel manufacturer.
- D. Dissimilar Metal Separator: Use membrane integral with membrane in that area or suitable plastic isolators.

2.3 DESIGN

- A. Panel Dimension Tolerances
 - 1. Size tolerance - Width and length $\pm 1/16$ in.
 - 2. Panel Joint Alignment - Fabricate panels so alignment of panel corners do not vary more than $1/16$ in. in vertical direction across a joint. Panels in plane alignment shall not vary more than $1/16$ in. in horizontal or vertical direction across a joint.
 - 3. Flatness - Flat facings are considered smooth if clearance is less than .015 in along a 6 in. rule.
- B. Design Calculations
 - 1. System shall be designed to meet the criteria given in Article 1.05 of this Section.
 - 2. Calculations and design shall include system attachment to the substructure and attachment of the substructure to the existing framing system.
 - 3. Calculations shall be made by Structural Engineer licensed in Illinois.
- C. Survey: Contractor shall perform a survey of the existing building prior to making shop drawings. Verify that specified tolerances can be met.

2.4 ERECTION DRAWINGS

- A. Furnish drawings complete with full size (where practical) details of all major interfaces and periphery conditions.
- B. Drawings shall specify and indicate all materials furnished as well as finishes to be applied.
- C. These drawings shall also serve as field installation drawings and be complete with specific instructions to General Contractor and Erector for the application of the products, periphery trim and all sealants, etc. to ensure a weathertight installation.
- D. Drawings shall show details and instructions for the installation of any structural supports. These items shall be so detailed as to show the complete interface.
- E. No materials shall be manufactured or fabricated until Architect/Engineer has reviewed drawings.

2.5 FABRICATION

- A. Comply with dimensions, profile limitations, thickness (gauge) and fabrication details shown on reviewed shop drawings. If not shown, provide manufacturer's standard product fabrication and details.

- B. Components of the system shall be manufactured at the Factory, ready for final installation.
- C. Fabricate components and assemble units to comply with fire and/or performance requirements specified.

PART 3 EXECUTION

3.1 WALL PANEL ERECTION

- A. Manufacturer is to provide detailed instructions covering the tools, fasteners, sealants, gaskets, and procedures required to assure performance of the wall assembly as specified.
- B. Work shall be coordinated with other trades as required to insure proper flashing and seals to intersecting construction.
- C. Install the wall system, fasteners, trim, and related items, in accordance with dimensions and procedures shown in the approved shop drawings.
- D. Sealants and gaskets shall be installed where shown and in accordance with the approved shop and erection drawings to assure water infiltration performance specified. Manufacturer of metal panels is to provide all gaskets and fillers as required for the specified systems.
- E. Wall panels and related systems or items specified in this Section, shall be erected by manufacturer's approved erector.
- F. Support/Anchoring (Substructure) Systems shall be erected true and plumb in order to provide proper final alignment of finished wall system.
- G. Variation of Plumbness of Exterior Panels - 1/8 in. per 10 ft of panel height or floor height, whichever is smaller.

3.2 DISSIMILAR METALS

- A. Separate dissimilar metals by bonding membrane tape to the matching surface of aluminum, iron or steel.

3.3 DAMAGED MATERIAL

- A. Material that has been damaged by other Contractors, the Manufacturer or Distributor shall be replaced or repaired to the satisfaction of the Architect. Installed areas shall be inspected and approved by Owner or Architect/Engineer immediately following the completion of those areas.
- B. Follow manufacturer's recommendations for cleaning and priming prior to touch up painting. Touch up only scratches that can be touched up with an artist's brush.
- C. Repairs shall not be visible when viewed from a distance of 10 ft.

3.4 CLEANING

- A. Panel System Erector shall provide a wipe down cleaning of all specified work as it is completed.

- B. Final cleaning shall be the responsibility of the General Contractor.
- C. At the conclusion of Wall Panel work, remove all scaffolding and equipment used in the work, clean up all debris, refuse and surplus material and remove same from the premises.

END OF SECTION

SECTION 075423**THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes: Surface preparation, supply, and installation of mechanically attached, induction welded, TPO membrane roofing system including insulation and cover board.
- B. Related Sections:
 - 1. Section 07 62 00 - Sheet Metal Flashing and Trim: Sheet metal flashings and counterflashings.

1.2 REFERENCES

- A. Definitions:
 - 1. Square: 100 square feet.
- B. Reference Standards: Latest edition as of Specification date.
 - 1. American National Standards Institute (ANSI)/Single Ply Roofing Industry (SPRI):
 - a. ANSI/SPRI FX-1: Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners.
 - 2. American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI):
 - a. ASCE/SEI 7: Minimum Design Loads for Buildings and Other Structures.
 - 3. ASTM International:
 - a. C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - b. D4263: Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 - c. D4637: Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
 - d. D6135: Standard Practice for Application of Self-Adhering Modified Bituminous Waterproofing.
 - e. 108: Standard Test Methods for Fire Tests of Roof Coverings.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate Work to ensure that new insulation and roofing materials and building interior are kept continuously dry; that continuous, watertight, new roofing system is provided; and that adjacent areas are not adversely affected. Coordinate:
 - 1. With Owner's Representative.
 - 2. With other trades:
 - a. To ensure that work done by other trades is complete and ready for roofing Work.
 - b. To avoid or minimize work on, or in immediate vicinity of, roofing Work in progress.
 - c. To ensure that subsequent work will not adversely affect completed roofing.
- B. Pre-installation Meeting:

1. Conduct meeting at Site.
2. Review requirements for roofing system, including:
 - a. Construction schedule.
 - b. Availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - c. Site use, access, staging, and set-up location limitations.
 - d. Forecast weather conditions.
 - e. Surface preparation and substrate condition and pretreatment.
 - f. Installation procedures.
 - g. Base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 - h. Testing and inspection requirements.
 - i. Temporary protection and repair of roofing system.
 - j. Structural loading limitations of roof deck.
 - k. Governing regulations and requirements for insurance and certificates.
3. Contractor's Site superintendent, roofing-system manufacturer's technical representative, roofing Installer's foreperson, Owner's Representative, Architect/Engineer, and testing agency representative shall attend.

1.4 SUBMITTALS

- A. Product Data: Roofing-system manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and application instructions.
 1. For membrane and base flashing materials, and bonding and cold, fluid-applied adhesives, primer, seaming material, lap sealant, water-cutoff mastic, walkways, and fasteners.
 2. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations.
 3. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work; for details and fabrications not shown on Drawings.
 1. Membrane terminations and base flashings. Draw to scale.
 2. Tapered insulation, including slopes.
 3. Crickets, saddles, and tapered edge strips, including slopes.
 4. Insulation fastening patterns.
 5. Proposed temporary, watertight, tie-off details for each substrate type.
- C. Manufacturer Certificate: Signed by roofing-system manufacturer, certifying that roofing system complies with specified requirements.
 1. Written approval by roofing-system manufacturer for use and performance of membrane over specified board insulation, including that materials supplied for Project comply with requirements of cited ASTM standards. Approval should also indicate materials are suitable for ASTM E108, Class 1A roof and meet specified wind uplift classification.
 2. Submit evidence that roofing system meets requirements.
- D. Installer Qualifications:
 1. Certification signed by roofing-system manufacturer, certifying that Installer complies with manufacturer's requirements to install specified, warranted, roofing system.

2. Evidence that Installer's *existing company* has minimum five years of continuous experience in similar roofing work; list of at least five representative, successfully-completed projects of similar scope and size, including:
 - a. Project name.
 - b. Owner's name.
 - c. Owner's Representative name, address, and telephone number.
 - d. Description of work.
 - e. EPDM materials used.
 - f. Project supervisor.
 - g. Total cost of roofing work and total cost of project.
 - h. Completion date.
- E. Sample Warranty: Copy of roofing-system manufacturer's warranty, stating obligations, remedies, limitations, and exclusions. Submitted with bid.
- F. Following completion of the Work:
 1. Roofing-system manufacturer's inspection report of completed roofing installation.
 2. Completed warranty from roofing-system manufacturer.
 3. Completed warranty from Installer.
 4. Maintenance program recommended for roofing system.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced firm that has successfully completed roofing work similar in materials, design, and extent to that indicated for Project; that is approved, authorized, or licensed by roofing-system manufacturer to install roofing system; and that is eligible to receive roofing-system manufacturer's warranty. Must have successful installations of specified materials in local area in use for minimum of five years.
 1. Employ foreperson with minimum five years of experience as foreperson on similar projects, who is fluent in English, to be on Site at all times during Work. Do not change foremen during the course of the Project except for reasons beyond the control of the Installer; inform Architect/Engineer in advance of any changes.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials according to manufacturer's recommendations and in such a manner as to prevent damage to materials or structure.
- B. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.
- C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which exhibit evidence of moisture during application or which have been exposed to moisture.
- D. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Use canvas tarps for protection of moisture-sensitive roofing materials. Protect stored materials from direct sunlight. Manufacturer's standard packaging and covering are not considered adequate weather protection.
 1. Manufacturer transportation wrap will not be accepted as protection for stored materials.

- E. Store rolled materials on ends only, unless otherwise required by manufacturer's written instructions. Discard rolls that have been flattened, creased, or otherwise damaged.
- F. Do not store materials at locations where new roofing materials have been installed.
- G. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.
- H. Conspicuously mark damaged containers, containers with contaminated materials, or wet or damaged materials, and remove from Site as soon as possible.
- I. Remove and replace materials that cannot be applied within stated shelf life.

1.7 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to start of roofing Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.
- B. Comply with Owner's limitations and restrictions for Site use and accessibility.
- C. Protect existing roofing from damage from construction activities. Repair damage to existing roofing from construction activities that result in leakage.
- D. Ensure that drains are operational at the end of each workday or if precipitation is forecast.
- E. Environmental Limitations: Install roofing when existing and forecast weather conditions permit roofing system to be installed according to roofing-system manufacturer's written instructions and warranty requirements.
 - 1. Apply roofing when substrate temperature is falling, and when substrate and ambient temperatures are within range recommended by roofing-system manufacturer.
 - 2. Do not proceed with installation during inclement weather except for temporary work necessary to protect building interior and installed materials. Remove temporary work and Work that becomes moisture damaged.
- F. Handle and install materials in strict accordance with safety requirements required by roofing-system manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.
- G. Maintain adequate ventilation during preparation and application of roofing materials.

1.8 CHANGES IN WORK

- A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
 - 1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

1.9 WARRANTY

A. Manufacturer's Warranty:

1. Written warranty, signed by roofing-system manufacturer, including:
 - a. Repair or replace components of roofing system that do not comply with requirements; that do not remain watertight; that fail in adhesion, cohesion, or general durability; or that deteriorate in a manner not clearly specified by submitted roofing-system manufacturer's data as an inherent quality of the material for the application indicated.
 - b. Wind speed coverage: 72 mph.
 - c. Removal and replacement of roof-deck board, base sheet, temporary roof/vapor retarder, insulation, and walkway products. Warranty includes replacing materials as necessary.
 - d. Labor and materials to perform warranty Work.
2. Warranty Period: 20 years from date of completion of roofing system.

B. Roofing Installer's Warranty:

1. Completed warranty form at the end of the Section, signed by Installer, including:
 - a. Repair or replace components of roofing system that do not comply with requirements; that do not remain watertight; that fail in adhesion, cohesion, or general durability; or that deteriorate in a manner not clearly specified by submitted roofing-system manufacturer's data as an inherent quality of the material for the application indicated.
 - b. Removal and replacement of roof-deck board, base sheet, temporary roof/vapor retarder, insulation, and walkway products. Warranty includes replacing materials as necessary.
 - c. Labor and materials to perform warranty Work.
2. Warranty Period: Two years from date of completion of roofing system.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain components for roofing system from roofing membrane manufacturer.
- B. General Performance: Installed roofing system and flashings to withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing system and flashings to remain watertight.
 1. Accelerated Weathering: Roofing membrane to withstand 2000 hours of exposure when tested in accordance with ASTM G152, ASTM G154, or ASTM G155.
 2. Impact Resistance: Roofing membrane to resist impact damage when tested in accordance with ASTM D3746/D3746M, ASTM D4272/D4272M, or the Resistance to Foot Traffic Test in FM Approvals 4470.
- C. Material Compatibility: Roofing system materials to be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

- D. Wind-Uplift Resistance: Design roofing system to resist the following ASD wind-uplift pressures when tested in accordance with FM Approvals 4474, UL 580, or UL 1897:
 - 1. Zone 1 (Roof Area Interior): 22.4 psf.
 - 2. Zone 2 (Roof Area Field): 35.2 psf
 - a. Location: From roof edge to 4 feet inside roof edge.
 - 3. Zone 3 (Roof Area Corners): 48.0 psf
 - a. Location: 8 feet in each direction from each building corner.
- E. Cool Roof Rating Council (CRRC): Roofing system to be listed by the CRRC for low-slope roof products.
- F. Energy Performance: Roofing system to have an initial solar reflectance index (SRI) of not less than 0.70 and an emissivity of not less than 0.75 when tested in accordance with CRRC S100.
- G. Exterior Fire-Test Exposure: Class A for application and roof slopes indicated; when tested by a qualified testing agency in accordance with ASTM E108 or UL 790.
 - 1. Identify products with appropriate markings of applicable testing agency.
- H. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated.
 - 1. Identify products with appropriate markings of applicable testing agency.

2.2 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING SYSTEM

- A. TPO Roofing Membrane Sheet: ASTM D6878/D6878M, internally fabric- or scrim-reinforced, TPO sheet.
 - 1. Thickness: 60 mils, nominal.
 - 2. Exposed Face Color: White.

2.3 ACCESSORY ROOFING SYSTEM MATERIALS

- A. General: Accessory materials as recommended in writing by roofing membrane manufacturer for intended use and compatible with other roofing system components.
 - 1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.
- B. Base and Sheet Flashings: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as roofing membrane.
- C. Prefabricated Pipe Flashings: As recommended in writing by roofing membrane manufacturer.
- D. Bonding Adhesive: Roofing membrane manufacturer's Low VOC.
- E. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars; with anchors.

- F. Fasteners:
1. Factory-coated steel fasteners with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing system components to substrate; tested for required pullout strength, and acceptable to roofing membrane manufacturer.
 2. Induction-Welding Plates: Minimum 3-inch diameter with recessed center, 0.034-inch thick, aluminum-zinc-alloy-coated steel plates, factory coated with adhesive formulated for roof membrane, with corresponding corrosion-resistant fasteners.
 1. Masonry Substrate: Stainless steel with hex washer head.
 - a. 410 Stainless Steel Tapcon manufactured by ITW Red Head, Inc.
 - b. 304 Stainless Steel Tapper, 1/4 inch diameter with hex washer head, manufactured by Powers Fasteners.
 - c. 1-3/4 inch minimum length, or as noted on details.
 2. Metal substrate: No. 12 by 1-1/2 inch, 410 stainless steel, self-drilling screws with 1 inch, stainless steel washers.
- G. Sealant: Roofing manufacturer's standard all-purpose sealant
- H. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- I. Safety Accessories: Roofing membrane manufacturer's standard yellow seaming tape for designating safety perimeters and rooftop hazards.
- J. Miscellaneous Accessories: As recommended in writing by roofing membrane manufacturer.

2.4 ROOF INSULATION AND ACCESSORIES

- A. General: Preformed roof insulation boards manufactured by roofing membrane manufacturer, approved for use in SPRI's "Directory of Roof Assemblies" listed roof assemblies.
- B. Polyisocyanurate Board Insulation (Roof Area 1 Only): ASTM C1289, Type II, Class 1 felt facer on both major surfaces.
1. Compressive Strength: Grade 2, 20 psi.
 2. Size: 48 by 96 inches.
 3. Thickness:
 - a. Base Layer: 1.5 inches.
 - b. Upper Layer: 1.5 inches.
- C. Tapered Insulation: Provide factory-tapered insulation boards.
1. Material: Match roof insulation.
 2. Minimum Thickness: 1/2 inch (6 mm).
 3. Slope:
 - a. Roof Field: Match existing (Roof Area 2 Only)
 - b. Saddles and Crickets: 1/2 inch per foot unless otherwise indicated on Drawings.
- D. Roof Insulation Accessories, General: As recommended in writing by insulation manufacturer for intended use and compatibility with other roofing system components.
1. Insulation Fasteners: Insulation manufacturer's standard factory-coated steel fasteners with metal or plastic plates complying with corrosion-resistance provisions in FM

Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

2. Induction-Welding Plates: Minimum 3-inch diameter with recessed center, 0.034-inch thick, aluminum-zinc-alloy-coated steel plates, factory coated with adhesive formulated for roof membrane, with corresponding corrosion-resistant fasteners.

2.5 COVER BOARD

- A. General: Cover board as recommended in writing by roofing membrane manufacturer for intended use and compatible with other roofing system components.
- B. Glass-Mat Gypsum Cover Board (Area 2 only): ASTM C1177/C1177M, water-resistant gypsum board.
 1. Thickness: 1/2 inch.
 2. Surface Finish: Fiberglass facer, Unprimed.
- C. Cover Board (For Area 1 Penthouse Walls): ASTM C1289, Class 4, Grade 1 High-density polyisocyanurate.
 1. Thickness: 1/2 inch.

2.6 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway rolls, approximately 3/16 inch thick and acceptable to roofing system manufacturer.
 1. Size: Approximately 36 inches wide.
 2. Color: Contrasting with roofing membrane.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer and roofing-system manufacturer's representative for compliance with requirements and for other conditions affecting performance of roofing system.
 1. Ensure that work done by other trades is complete and ready for roofing Work, including:
 - a. Roof openings and penetrations are in place and set and braced, and roof drains are securely clamped in place.
 2. Verify that areas and conditions under which roofing Work is to be performed permit proper and timely completion of Work.
 3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of roof system and recommend corrections.
 4. Do not proceed with roofing Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
 5. Commencing roofing Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

- A. Take precautions to ensure safety of people, including building users, passers-by, and workers, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.
- B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.
- D. Limit access to Work areas.
- E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.
- F. Comply with roofing-system manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.
- G. Cover adjacent surfaces with materials that are proven to resist roofing materials.
- H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SURFACE PREPARATION

- A. Area 1- Remove existing roofing membrane and other materials to expose wood deck.
 - 1. Remove only as much of existing roofing as can be prepared and new roofing system installed in one day, unless provisions are implemented to maintain watertightness in interim or larger removal areas are approved by Owner's Representative.
 - 2. Remove existing roofing to wood plank deck.
 - 3. Do not begin removal of existing roofing system when weather conditions are not conducive to maintaining watertightness or for application of new construction.
- B. Area 2 – Roofing membrane to remain in place
 - 1. Insulation shall remain in-place.
 - 2. Clear all debris and moisture from existing roof surface.
 - 3. Cut existing roofing into 5'x5' squares.
 - 4. Where wet materials are encountered, remove insulation to expose deck. Inspect deck for deterioration.
 - 5. Replace existing wet insulation materials on a unit cost basis.
 - 6. Provide temporary protection as needed if watertightness is compromised.
- C. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation, according to roofing-system manufacturer's written instructions. Remove sharp projections.
- D. Repair or replace deteriorated sections of substrate.
- E. Close off roof drains and other penetrations to prevent materials from entering and clogging drains and conductors, and from spilling or migrating onto adjacent surfaces. Remove roof-drain plugs when no work is taking place or when rain is forecast.

- F. Installer and roofing-system manufacturer's representative shall examine substrate to ensure that it is properly prepared and ready to receive roofing system. Roofing-system manufacturer's representative shall report in writing to Installer and Architect/Engineer conditions which will adversely affect roofing-system installation or performance. Do not proceed with roofing-system installation until these conditions have been corrected and reviewed by Architect/Engineer.
- G. Proceed with installation only after unsatisfactory conditions have been corrected. Commencing installation constitutes acceptance of Work surfaces and conditions.

3.4 INSTALLATION OF THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING SYSTEM, GENERAL

- A. Install roofing system materials and components in accordance with roofing system manufacturer's written installation instructions, SPRI's "Directory of Roof Assemblies" listed roof assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning Work on adjoining roofing.

3.5 INSTALLATION OF ROOF INSULATION AND ACCESSORIES

- A. Coordinate installation of roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.
- B. Comply with roofing system and insulation manufacturer's written installation instructions. Install minimum of two layers of insulation under area of roofing to achieve required thickness.
- C. Install each layer of insulation with joints staggered not less than 24 inches in adjacent rows and offset not less than 12 inches from previous layer.
 - 1. Trim insulation neatly to fit around penetrations and projections, and to fit tightly to intersecting sloping roof decks.
 - 2. Make joints between adjacent insulation boards not more than 1/4 inch in width.
 - 3. At internal roof drains, slope insulation to create a square drain sump, with each side equal to the diameter of the drain bowl plus 24 inches.
 - 4. Trim insulation, so that water flow is unrestricted.
 - 5. Fill gaps exceeding 1/4 inch with insulation.
 - 6. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
 - 7. Secure insulation in accordance with manufacturer's requirements for specified wind-uplift load capacity.
 - 8. Secure insulation to resist specified uplift pressure at corners, perimeter, and field of roof.
 - 9. Place plates on insulation in required fastening patterns wind uplift requirements and secure in accordance with manufacturer's instructions.
 - a. Install plates and fasteners tight and flat to substrate with no dimpling, and with fastener extending 1 inch minimum into roof deck; do not overdrive fasteners.

3.6 INSTALLATION OF COVER BOARD

- A. Install cover board over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.
 - 1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
 - 2. At internal roof drains, conform to slope of drain sump.
 - a. Trim cover board so that water flow is unrestricted.
 - 3. Cut and fit cover board tight to nailers, projections, and penetrations.
- B. Place plates on cover board in required fastening patterns and secure in accordance with roofing system manufacturer's written installation instructions.
 - 1. Install plates and fasteners tight and flat to substrate with no dimpling, and with fastener extending 1 inch minimum into roof deck; do not overdrive fasteners.

3.7 INSTALLATION OF TPO ROOFING MEMBRANE

- A. Install roofing membrane over roof area for mechanically attached application method in accordance with roofing system manufacturer's written installation instructions.
- B. Unroll roofing membrane and allow it to relax before installing.
- C. Start installation in presence of roofing system manufacturer's technical personnel.
- D. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- E. Mechanically Attached Application: Secure roofing membrane over area to receive roofing in accordance with roofing system manufacturer's written installation instructions.
 - 1. Induction-Weld Attachment: Secure roofing membrane to plates creating 100 percent bond between underside of membrane and top of plates; a partial bond is unacceptable. Test welds to verify adhesion of roofing membrane to top of plates in accordance with manufacturer's instructions.
- F. Seams and End Laps: Clean seam areas, overlap membrane, and hot-air-weld side seams and end laps of roofing membrane and sheet flashings to ensure a watertight installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane and sheet flashings.
 - 2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas.
 - 3. Repair tears, voids, and lapped seams in roofing membrane that do not comply with requirements.
- G. Spread sealant bed over deck-drain flange at roof drains and securely seal roofing membrane in place with clamping ring.

3.8 INSTALLATION OF BASE AND SHEET FLASHINGS

- A. General: Install and adhere base and sheet flashing and preformed flashing accessories to substrates in accordance with roofing system manufacturer's written installation instructions.
- B. Apply bonding adhesive to substrate and underside of flashings at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners.
- D. Clean seam areas, overlap, and firmly roll flashings into the adhesive. Hot-air-weld side seams and end laps to ensure a watertight installation.
- E. Terminate and seal top of flashings and mechanically anchor to substrate through termination bars.

3.9 INSTALLATION OF WALKWAYS

- A. Flexible Walkways: Install walkway products in accordance with manufacturer's written installation instructions.
 - 1. Install flexible walkways at the following locations:
 - a. At base of each roof access door
 - b. As required by roofing membrane manufacturer's warranty requirements.
 - 2. Provide 6-inch clearance between adjoining pads.
 - 3. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive in accordance with roofing system manufacturer's written instructions.

3.10 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.
 - 1. Notify Architect and Owner 48 hours in advance of date and time of inspection.
- B. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.
 - 1. Roofing system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

3.11 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.12 ROOFING SYSTEM INSTALLER'S WARRANTY

- A. WHEREAS _____ of _____, herein called the "Roofing System Installer," has performed roofing and associated Work on the following Project:
 - 1. Owner: **<Insert name of Owner>**.
 - 2. Owner Address: **<Insert address>**.
 - 3. Building Name/Type: **<Insert information>**.
 - 4. Building Address: **<Insert address>**.
 - 5. Area of Work: **<Insert information>**.
 - 6. Warranty Period: **Two<Insert number>** years from date of Substantial Completion.
 - 7. Date of Substantial Completion: _____.
- B. AND WHEREAS Roofing System Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said Work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing System Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period, Roofing System Installer will, at Roofing System Installer's own cost and expense, make or cause to be made such repairs to or replacements of said Work as are necessary to correct faulty and defective work and as are necessary to maintain said Work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
 - 1. Specifically excluded from this Warranty are damages to Work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding 72 mph;
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the Work;

- f. vapor condensation on bottom of roofing; and
 - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When Work has been damaged by any of foregoing causes, Warranty will be null and void until such damage has been repaired by Roofing System Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing System Installer is responsible for damage to Work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of Work.
4. During Warranty Period, if Owner allows alteration of Work by anyone other than Roofing System Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty will become null and void on date of said alterations, but only to the extent said alterations affect Work covered by this Warranty. If Owner engages Roofing System Installer to perform said alterations, Warranty will not become null and void unless Roofing System Installer, before starting said Work, will have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate Work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty will become null and void on date of said change, but only to the extent said change affects Work covered by this Warranty.
6. Owner will promptly notify Roofing System Installer of observed, known, or suspected leaks, defects, or deterioration and afford reasonable opportunity for Roofing System Installer to inspect Work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing System Installer on said Work and will not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty will not operate to relieve Roofing System Installer of responsibility for performance of original Work in accordance with requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION 075423

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Supply, fabrication, and installation of roof and wall flashings and counterflashings; copings; gutters and downspouts.
- B. Related Sections:
 - 1. Section 07 54 23 – Thermoplastic Polyolefin (TPO) Membrane Roofing

1.2 REFERENCES

- A. Reference Standards: Latest edition as of Specification date.
 - 1. American Architectural Manufacturers Association (AAMA):
 - a. 611: Voluntary Specification for Anodized Architectural Aluminum.
 - b. 2604: Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
 - 2. ASTM International:
 - a. A653/A653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - b. A755/A755M: Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 - c. A792/A792M: Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - d. C920: Standard Specification for Elastomeric Joint Sealants.
 - 3. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).
 - a. Architectural Sheet Metal Manual.
 - 4. SSPC: The Society for Protective Coatings:

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
 - 1. With Owner's Representative.
 - 2. With other trades:
 - a. To ensure that work done by other trades is complete and ready for sheet-metal Work.
 - b. To avoid or minimize work on, or in immediate vicinity of, sheet-metal Work in progress.
 - c. To ensure that subsequent work will not adversely affect completed sheet-metal Work.
 - 3. With interfacing and adjoining construction to provide leakproof, secure, and non-corrosive installation. Coordinate:
 - a. Installation of roof drainage system with installation of roof perimeter flashing.
 - b. Installation of roof-penetration flashing with installation of roofing and other items penetrating roof.
 - c. Construction schedule.

- d. Availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - e. Site use, access, staging, and set-up location limitations.
 - f. Approved mockup procedures.
 - g. Forecast weather conditions.
 - h. Surface preparation and substrate condition and pretreatment.
 - i. Installation procedures.
 - j. Special details.
 - k. Testing and inspection requirements.
 - l. Site protection measures.
 - m. Governing regulations.
4. Contractor's Site superintendent, waterproofing manufacturer's technical representative, waterproofing Installer, sheet-metal fabricator, sheet-metal Installer, Owner's Representative, and Architect/Engineer shall attend.

1.4 SUBMITTALS

- A. Product Data: For each product specified.
 - 1. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.
- B. Shop Drawings: Show layouts, profiles, shapes, seams, dimensions, and details for fastening, joining, supporting, interface conditions with other materials, and anchoring sheet-metal flashing and trim.
- C. Installer Qualifications: Evidence that Installer's *existing company* has minimum five years of continuous experience in similar sheet-metal Work; list of at least five representative, successfully-completed projects of similar scope and size, including:
 - 1. Project name.
 - 2. Owner's name.
 - 3. Owner's Representative name, address, and telephone number.
 - 4. Description of work.
 - 5. Sheet-metal members installed.
 - 6. Project supervisor.
 - 7. Total cost of sheet-metal work and total cost of project.
 - 8. Completion date.
- D. Certificates: For each type of coping and roof edge flashing that is ES-1 tested.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced firm that has successfully completed sheet-metal work similar in material, design, and extent to that indicated for Project. Must have successful installations of specified materials in local area in use for minimum of five years.
 - 1. Employ foreman with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during Work. Do not change foremen during the course of the Project except for reasons beyond the control of the Installer; inform Architect/Engineer in advance of any changes.
- B. For roof edge flashings and copings that are ANSI/SPRI/FM 4435/ES-1 tested, shop is to be listed as able to fabricate required details as tested and approved.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Sheet-Metal Members: Deliver, store, and handle materials in such a manner as to prevent damage to materials or structure.
- B. Sealants, Coatings, and Miscellaneous Materials:
 - 1. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing.
 - 2. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, and installation. Reject and remove from Site new materials which exhibit evidence of moisture during application, or have been exposed to moisture.
 - 3. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Protect stored materials from direct sunlight. Manufacturer's standard packaging and covering is not considered adequate weather protection.
 - 4. Handle materials to avoid damage.
 - 5. Conspicuously mark damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.
 - 6. Remove and replace materials that cannot be applied within stated shelf life.
- C. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

1.7 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to start of sheet-metal Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.
- B. Comply with Owner's limitations and restrictions for Site use and accessibility.
- C. Environmental Limitations: Install sheet-metal members when existing and forecast weather conditions permit sealants, coatings, and miscellaneous materials to be installed according to sealant, coating, or miscellaneous material manufacturer's written instructions and warranty requirements.
- D. Handle and install materials in strict accordance with safety requirements required by sheet-metal manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

1.8 CHANGES IN WORK

- A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
 - 1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

1.9 WARRANTY

A. Contractor's Warranty:

1. Written warranty, signed by Contractor, including:
 - a. Replace sheet-metal Work that does not comply with requirements; that has corroded surface, coating that fails cohesively or adhesively, or other surface defects or imperfections; or that deteriorates in a manner not clearly specified by material supplier's data as an inherent quality of the material for the application indicated.
 - b. Remove and replace sealant that has failed cohesively or adhesively; or that deteriorates in a manner not clearly specified by sealant manufacturer's data as an inherent quality of the material for the application indicated.
 - c. Repair or replacement, to satisfaction of Owner, of other work or items which may have been displaced or damaged as consequence of defective Work.
 - d. Warranty does not include deterioration or damage from changes in sheet-metal environment from that reasonably anticipated at Substantial Completion, or physical damage from adjacent activities.
2. Warranty Period: Two years after Substantial Completion date.

B. Manufacturer's Warranty:

1. Written warranty, signed by sheet-metal manufacturer, including:
 - a. Replace sheet-metal Work that does not comply with requirements; that has corroded surface, coating that fails cohesively or adhesively, or other surface defects or imperfections; or that deteriorates in a manner not clearly specified by material supplier's data as an inherent quality of the material for the application indicated.
 - b. Warranty does not include deterioration or damage from changes in sheet-metal environment from that reasonably anticipated at Substantial Completion, or physical damage from adjacent activities.
2. Written warranty, signed by manufacturer against defects to the metal panels including color, fade, chalking, and film integrity.
3. Warranty Period: 20 years after Substantial Completion date.

PART 2 PRODUCTS

2.1 SHEET METAL

- A. For roof edge flashing; copings; counterflashings; roof-penetration flashing; chimney caps; gutters; and drip edges:
 1. Prepainted, Metallic-Coated, Steel Sheet: ASTM A755/A755M, metallic coated by hot-dip process and prepainted by coil-coating process; 24 gage.
 - a. Zinc-coated (galvanized), Steel Sheet: ASTM A653, G90 coating designation; structural quality.
 - b. Exposed, Coil-coated Finishes:
 - 1) High-performance-organic finish: Three-coat thermocured system containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements of AAMA 2604, except humidity and salt spray resistances of 2,000 hours; color as selected by Owner from manufacturer's full range.
- B. For roof edge flashing; and drip edges:
 1. Prepainted, Metallic-Coated, Steel Sheet: ASTM A755/A755M, metallic coated by hot-dip process and prepainted by coil-coating process; 24 gage.

- a. Zinc-coated (galvanized), Steel Sheet: ASTM A653, G90 coating designation; structural quality.
- b. Roofing manufacturer's approved TPO coated metal

2.2 AUXILIARY MATERIALS

- A. Underlayment Materials:
 1. Self-Adhering Sheets: Butyl based, self-adhering waterproofing sheets.
 2. Basis of Design: Grace Ultra by GCP Applied Technologies.
- B. Miscellaneous Materials:
 1. General: Provide materials and types of fasteners, protective coatings, separators, sealants, and other miscellaneous items required for installation.
 2. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads. Size fasteners to provide penetration into substrate of at least 1 1/4 inches for nails and 3/4 inches for wood screws.
 3. Sealing Tape: Pressure-sensitive, 100-percent solids, polyisobutylene-compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, non-staining tape.
 4. Elastomeric Sealant: ASTM C920, elastomeric polyurethane sealant; of type, grade, class, and use classifications required to seal joints in sheet-metal flashing and trim and remain watertight.
 5. Butyl Sealant: ASTM C1311, single-component, solvent-release, butyl-rubber sealant; polyisobutylene-plasticized; heavy-bodied for hooked-type expansion joints with limited movement.

2.3 FABRICATION

- A. Custom fabricate to comply with recommendations in SMACNA's Architectural Sheet Metal Manual, that apply to design, dimensions, metal, and other characteristics of item indicated. Conform to dimensions and profiles shown in SMACNA's Architectural Sheet Metal Manual, unless requirements that are more stringent are indicated.
 1. Obtain field measurements for accurate fit before fabrication.
 2. Shop fabricate items where practicable.
- B. Fabricate without excessive oil canning, buckling, or tool marks that are visually objectionable in opinion of Architect/Engineer, and true to line and levels indicated, with exposed edges folded back to form hems.
- C. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant and in compliance with recommendations in SMACNA's Architectural Sheet Metal Manual.
- D. Expansion Provisions: Use lapped or bayonet-type expansion provisions where possible; otherwise, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints.
- E. Conceal fasteners and expansion provisions, where possible, on exposed-to-view sheet-metal flashing and trim, unless otherwise indicated.

- F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, non-corrosive metal, and in thickness not less than that of metal being secured.
- G. Prerimeter Fabrications:
 - 1. Roof edge flashing gravel stop and drip edge: Fabricate in minimum 8-foot-long, but not exceeding 10-foot-long, sections. Furnish with 6-inch-wide joint cover plates.
 - 2. Copings: Fabricate in minimum 8-foot-long, but not exceeding 10-foot-long, sections.
 - a. Fabricate joint plates of same thickness as copings.
 - b. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg.
 - c. Miter corners and seal watertight.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with Installer for compliance with requirements and other conditions affecting performance of sheet-metal flashings and trim.
 - 1. Ensure that work done by other trades is complete and ready for sheet-metal Work.
 - 2. Verify that areas and conditions under which sheet-metal Work is to be performed permit proper and timely completion of Work.
 - 3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of sheet-metal Work and recommend corrections.
 - 4. Do not proceed with installation of sheet-metal flashings and trim until adverse conditions have been corrected and reviewed by Architect/Engineer.
 - 5. Commencing sheet-metal Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

- A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.
- B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.
- D. Limit access to Work areas.
- E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.
- F. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 INSTALLATION

- A. General: Install sheet-metal flashings and trim according to recommendations in SMACNA's Architectural Sheet Metal Manual and as indicated.

- B. Install sheet-metal flashing and trim to fit substrates and to result in watertight performance.
 - 1. Install true to line and levels indicated.
 - 2. Where exposed, install without excessive oil canning, buckling, or tool marks.
 - 3. Provide uniform, neat seams with minimum exposure of solder, welds, or sealant.
 - 4. Do not torch cut sheet metal.
- C. Provide for thermal expansion of exposed flashing and trim.
 - 1. Space movement joints no more than 10 feet apart, with no joint within 24 inches of corner or intersection.
 - 2. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with elastomeric sealant concealed within joints.
- D. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
- E. Anchor sheet-metal flashing and trim and other components of Work securely in place, with provisions for thermal and structural movement. Use fasteners protective coatings, separators, sealants, and other miscellaneous items as required.
 - 1. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners
- F. Seal joints with elastomeric sealant as required for watertight construction.
- G. Roof Flashing Installation:
 - 1. General:
 - a. Set units true to line and level as indicated.
 - b. Provide concealed fasteners where possible.
 - c. Install Work with laps, joints, and seams that will be permanently watertight.
 - 2. Roof Edge Flashing:
 - a. Anchor as shown on Drawings.
 - b. Interlock bottom edge of roof edge flashing with continuous cleats anchored to substrate at 12-inch centers.
 - 3. Copings:
 - a. Anchor as shown on Drawings.
 - b. Interlock exterior bottom edge of coping with continuous cleats anchored to substrate at 12-inch centers.
 - c. Anchor interior leg of coping with screw fasteners and washers at 18-inch centers.
 - 4. Counterflashing: Mechanically fasten counterflashing and fit tightly to base flashing.
 - a. Extend counterflashing 4 inches over base flashing.
 - b. Secure in waterproof manner.
 - c. Lap counterflashing joints at least 4 inches and bed with elastomeric sealant.

3.4 CLEANING

- A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.
- B. After completing sheet-metal Work:

1. Clean spillage and soiling from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
2. Repair surfaces stained, marred, or otherwise damaged during roofing Work.
3. Clean up debris and surplus materials and remove from Site.

3.5 PROTECTION

- A. Protect sheet-metal flashings and trim from damage and wear during remainder of construction period.

END OF SECTION

SECTION 09 24 23 - STUCCO REPAIR

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Supply and installation of stucco repairs.
- B. Related Sections:
 - 1. Section 07 62 00 - Sheet Metal Flashing and Trim

1.2 UNIT PRICES

- A. Unit prices as described in Section 01 20 10
- B. Perform the following Work on unit price basis:
 - 1. Extension of stucco removal at areas beyond the base scope.

1.3 REFERENCES

- A. Reference Standards: Latest edition as of Specification date.
 - 1. ASTM International:
 - a. A641/A641M: Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - b. A653/A653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - c. B69: Standard Specification for Rolled Zinc.
 - d. C150/C150M: Standard Specification for Portland Cement.
 - e. C206: Standard Specification for Finishing Hydrated Lime.
 - f. C207: Standard Specification for Hydrated Lime for Masonry Purposes.
 - g. C847: Standard Specification for Metal Lath.
 - h. C897: Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters.
 - i. C926: Standard Specification for Application of Portland Cement-Based Plaster.
 - j. C933: Standard Specification for Welded Wire Lath.
 - k. C979/C979M: Standard Specification for Pigments for Integrally Colored Concrete.
 - l. C1032: Standard Specification for Woven Wire Plaster Base.
 - m. C1063: Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.
 - n. C1116/C1116M: Standard Specification for Fiber-Reinforced Concrete.
 - o. E84: Standard Test Method for Surface Burning Characteristics of Building Materials
 - p. E1677: Standard Specification for Air Barrier (AB) Material or Assemblies for Low-Rise Framed Building Walls
 - q. F1249: Standard Test Method for Water Vapor Transmission Rate through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
 - 2. Federal Specifications (FS):
 - a. UU-B-790a: Building Paper, Vegetable Fiber: (Kraft, Waterproofed, Water Repellent and Fire Resistant).
 - 3. Portland Cement Association (PCA):
 - a. Plaster / Stucco Manual.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
 - 1. With Owner's Representative.
 - 2. With other trades:
 - a. To ensure that work done by other trades is complete and ready for stucco Work.
 - b. To avoid or minimize work on, or in immediate vicinity of, stucco Work in progress.
 - c. To ensure that subsequent work will not adversely affect completed stucco Work.
- B. Pre-construction Meeting:
 - 1. Conduct meeting at Site.
 - 2. Review requirements for stucco Work, including:
 - a. Construction schedule.
 - b. Availability of materials, personnel, equipment, and facilities needed to make progress and avoid delays.
 - c. Site use, access, staging, and set-up location limitations.
 - d. Material storage requirements
 - e. Forecast weather conditions.
 - f. Surface preparation and substrate condition.
 - g. Installation procedures.
 - h. Special details.
 - i. Minimum cure period and curing procedure.
 - j. Testing and inspection requirements.
 - k. Temporary protection.
 - l. Structural loading limitations of deck.
 - m. Government regulations.
 - n. Crack acceptance criteria
 - o. Unit price documentation procedure
 - 3. Contractor's Site superintendent, stucco Subcontractor's foreman, Owner's Representative, and Architect/Engineer shall attend.

1.5 SUBMITTALS

- A. Product Data: Inclusive list and descriptions of materials to be used, including Portland cement, hydrated lime, sand aggregate, fibers, admixtures, metal lath, and accessories.
 - 1. Include, Globally Harmonized System (GHS) or, if not yet available, Material Safety Data Sheets for information only.
 - 2. For proprietary/pre-blended stucco mix:
 - a. Manufacturer's specification and application instructions for each type of product indicated.
- B. Samples:
 - 1. One 12-inch-square sample each of metal lath.
 - 2. One 6-inch-long sample of each accessory.
- C. Mix Designs: Proportions for each material in each stucco coat.
- D. Stucco Subcontractor Qualifications: Evidence that Subcontractor's *existing company* has minimum five years of continuous experience in similar stucco work; list of at least five representative, successfully completed projects of similar scope and size, including:
 - 1. Project name.
 - 2. Owner's name.

3. Owner's Representative name, address, and telephone number.
4. Description of work.
5. Materials used.
6. Project supervisor.
7. Total cost of stucco work and total cost of project.
8. Completion date.

1.6 QUALITY ASSURANCE

- A. Stucco Subcontractor Qualifications: Experienced firm that has successfully completed stucco work similar in material, design, and extent to that indicated for Project. Must have successful construction with specified materials in local area in use for minimum of five years.
 1. Employ foreman with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during Work. Do not change foreman during the course of the Project except for reasons beyond the control of the Subcontractor; inform Architect/Engineer in advance of any changes.
 2. Use adequate number of properly trained workers, experienced in necessary crafts and familiar with specified requirements and methods needed for proper performance of Work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials according to manufacturer's recommendations and in such a manner as to prevent damage to materials or structure.
- B. Deliver materials to Site in original containers and packaging with seals unbroken. Labeled with manufacturer's name; product brand name, type, grade, weight; date of manufacturer, lot number, and directions for storing and mixing with other components. Deliver aggregate in clean containers, free from contaminants.
- C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, and installation. Reject and remove from Site new materials which have been exposed to moisture.
- D. Store materials in original, undamaged containers in clean, dry, ventilated, protected location on raised platforms with weather-protective, breathable coverings, within temperature range required by manufacturer. Neatly stack lath flat to prevent deformation. Protect stored materials from direct sunlight, surface contamination, and corrosion. Manufacturer's standard packaging and covering is not considered adequate weather protection.
- E. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.
- F. Provide protection to new and existing roofs at each outlined work area.
- G. Conspicuously mark damaged or opened containers or containers with contaminated materials and remove from Site as soon as possible.
- H. Remove and replace materials that cannot be applied within stated shelf life.

1.8 PROJECT CONDITIONS

- A. Verify existing dimensions and details prior to start of stucco Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor of changes.
- B. Comply with Owner's limitations and restrictions for Site use and accessibility.
- C. Environmental Limitations: Install stucco system only when substrate and ambient temperatures are between 50 and 90 degrees F, unless approved by Architect/Engineer. For factory-prepared finishes or proprietary/pre-blended material, comply with manufacturer's written recommendations for environmental conditions.
- D. Cure stucco to permit continuous hydration of the cementitious materials and prevent premature loss of water resulting in early hydration. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
- E. Protect substrates, mixes, and finished stucco from uneven and excessive evaporation during dry weather and from strong blasts of dry air either natural or artificial.
- F. Protect contiguous Work from soiling, spattering, moisture deterioration and other harmful effects that might result from application of stucco.
- G. Protect adjacent finished surfaces, installed prior to placement of stucco by covering window and door frames, sills, ledges, roofing and pavement by appropriate means.
- H. Maintain protection in place until stucco placement is complete.
- I. Handle and install materials in strict accordance with safety requirements required by manufacturers; GHS or Material Safety Data Sheets; and local, state, and federal rules and regulations. Maintain GHS or Material Safety Data Sheets with materials in storage area and available for ready reference on Site.
- J. Existing Conditions
 - 1. Verify existing dimensions and details prior to start of stucco Work. Notify Architect/Engineer of conditions found to be different than those indicated in Contract Documents. Architect/Engineer will review situation and inform Contractor of changes.
 - 2. Comply with Owner's limitations and restrictions for Site use and accessibility.
 - 3. Provide protection to features of the building not included in the Work. Damage to areas or building features not included in the scope of work shall be repaired at no additional cost to the Owner and to the satisfaction of the Architect/Engineer.
 - 4. In the event of damage in the existing construction, newly installed Work and cracks in the stucco finish, immediately make all repairs and replacements necessary to the approval of the Architect/Engineer and at no additional cost to the Owner.

1.9 CHANGES IN WORK

- A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials or components that could jeopardize the integrity or performance of the Work.

1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

PART 2 PRODUCTS

2.1 EXISTING STUCCO SYSTEM

- A. The existing stucco system is assumed to consist of a three-coat assembly over paper backed lath over plywood or wood plank sheathing. The base of wall includes sealant joints with no means for drainage, the assembly is generally designed as a barrier system.

2.2 STUCCO

- A. Materials:
 1. Cement:
 - a. White Portland Cement: ASTM C150/C150M, Type I.
 2. Hydrated Lime:
 - a. Finishing hydrated lime: ASTM C206, Type S
 - b. Hydrated lime for masonry purposes: ASTM C207, Type S.
 3. Sand Aggregate: ASTM C897; well-graded, clean, and free from organic impurities, loam, clay, and vegetable matter.
 4. Fibers for Scratch and Brown Coat: ASTM C1116/C1116M; Nylon 3/4 inch long, free of contaminants, manufactured for use in portland cement stucco.
 5. Admixtures: No admixtures are permitted unless specified herein or approved by Architect/Engineer. Admixtures shall not reduce compressive strength, tensile strength, flexural strength, impact strength, or resistance to abrasion of mortar below strength of mortar without admixtures. Admixtures shall not increase permeability and corrosion of metal embedded in mortar.
 - a. Bonding Admixture: Use one of the following or approved equal:
 - 1) MasterEmaco A 660 manufactured by BASF Building Systems.
 - 2) StuccoBond manufactured by BASF Wall Systems.
 - 3) Weld-crete Concrete Bonding Agent by Larsen Products Corp.
 - b. Color Pigments: ASTM C979/C979M; Colorfast, prepackaged mineral pigments.
 6. Water for Mixing: Potable and free of substances capable of affecting stucco set or of damaging stucco, lath, or accessories.
 7. Proprietary/Pre-blended Material: Prebagged materials similar in composition, color, and texture to existing stucco; Use products from manufacturers such as 1 of following or approved equal:
 - a. Sto Corp.
 - b. Parex USA, Inc.
 - c. BASF Wall Systems.
- B. Mix Designs:
 1. Scratch Coat:
 - a. Cement: Use one part portland cement.
 - b. Hydrated Lime: Use sufficient hydrated lime to provide desired plasticity; per Table 2 of ASTM C 926
 - c. Aggregate: 2 1/2 to four times sum of cement and hydrated lime by volume.
 - d. Water: Use sufficient water to achieve desired consistency. When bonding to existing stucco with slurry coat, substitute bonding admixture for 25 to 33 percent of water.

- e. Fibers: Use dosage, in pounds of fiber per cubic feet of cement and hydrated lime, recommended by fiber manufacturer, but not to exceed 1 pound of fiber per cubic feet of cement and hydrated lime. Add fiber to scratch coat mix after other ingredients have been mixed at least two minutes.
- 2. Brown Coat:
 - a. Cement: Use one part portland cement.
 - b. Hydrated Lime: Use sufficient hydrated lime to provide desired plasticity; ; per Table 2 of ASTM C 926.
 - c. Aggregate: Three to five times sum of cement and hydrated lime by volume.
 - d. Water: Use sufficient water to achieve desired consistency. When bonding to existing stucco with slurry coat, substitute bonding admixture for 25 to 33 percent of water.
 - e. Fibers: Use dosage, in pounds of fiber per cubic feet of cement and hydrated lime, recommended by fiber manufacturer, but not to exceed 1 pound of fiber per cubic feet of cement and hydrated lime. Add fiber to scratch coat mix after other ingredients have been mixed at least two minutes.
- 3. Finish Coat: Batched and mixed at Site.
 - a. Cement: Use one part portland cement.
 - b. Hydrated Lime: Use sufficient hydrated lime to provide desired plasticity; per Table 2 of ASTM C 926.
 - c. Aggregate: 1 1/2 to three times sum of cement and hydrated lime by volume.
 - d. Water: Use sufficient water to achieve desired consistency.
 - e. Prebagged portland cement, fine aggregates, coloring agents, and proprietary ingredients.

2.3 OTHER MATERIALS

- A. Metal Lath: Hot-dipped galvanized per ASTM A653/A653M; to match existing.
 - 1. Expanded-Metal Lath: ASTM C847.
 - a. Diamond-Mesh Lath: Self-furring; 3.4 pounds/square yard.
 - 2. Welded-Wire Lath: ASTM C933 Self-furring; 1.95 pounds/square yard.
- B. Accessories: Comply with ASTM C1063. Coordinate depth of trim and accessories with thicknesses and number of stucco coats required.
 - 1. Casing Beads: Zinc alloy per ASTM B69, 99% pure zinc; with square, bull-nosed or beveled edge style to match existing and expanded flanges.
 - 2. Fasteners: Type and size required to rigidly secure materials in place. Fasteners embedded into structural concrete shall be stainless steel.
 - 3. Tie Wire: Zinc-coated: ASTM A641/A641M, Class 1; not less than 0.0475-inch diameter.
- C. Air-Moisture Barrier, Vapor Permeable: Polymer-based building wrap, ASTM E1677, Type I air barrier, with flame spread index less than 25 and smoke developed index less than 450, when tested according to ASTM E84: UV stabilized; and acceptable to authorities having jurisdiction.
 - 1. Basis of design: Tyvek Commercial Wrap manufactured by Dupont.
 - 2. Use pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.
 - 3. Air-Moisture Barrier Accessories: Provide primers, transition strips, termination strips, , joint sealants, tapes, foam sealants, lap sealants, and other accessory materials that are recommended in writing by air-moisture barrier manufacturer to produce a complete air-moisture barrier assembly and that are compatible with primary weather barrier material and adjacent construction to which they may seal.

- D. Water-Resistive Barrier:
 - 1. Kraft Building Paper: FS UU-B-790a, Type I, Grade D, Style 2; Water-vapor-permeable, asphalt-saturated.
 - a. Water vapor transmission not less than 35 grams/square meter/24 hours per ASTM F1249.
 - b. Water resistance not less than 60 minutes per ASTM D779.
 - c. Use pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.
- E. Flexible Flashing: Fully self-adhering, self-healing butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce overall thickness of not less than 0.025 inch. Use the following or approved equal:
 - a. DuPont Flashing Tape, manufactured by DuPont.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with stucco Subcontractor for compliance with requirements and other conditions affecting installation or performance of stucco Work.
 - 1. Ensure that work done by other trades is complete and ready for stucco Work.
 - 2. Verify that areas and conditions under which stucco Work is to be performed permit proper and timely completion of Work.
 - 3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of stucco Work and recommend corrections.
 - 4. Do not proceed with stucco Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
 - 5. Commencing stucco Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

- A. Take precautions to ensure safety of people, including building users, passers-by, and workmen, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.
- B. Prevent construction debris and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.
- C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.
- D. Limit access to Work areas.
- E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.
- F. Maintain watertight building enclosure. Cover wall sections with plastic sheets as necessary.
- G. Masking and Preparation:
 - 1. Remove hardware, light fixtures, and other items in stucco repair areas. If removal is impractical because of size or weight of item, protect item during surface preparation and

- stucco application. After completing coating work, reinstall items removed, using workers skilled in trades involved.
 - 2. Mask off or protect from soiling, spatter, overspray, moisture deterioration, and other damage surfaces not scheduled to receive stucco system and adjacent construction and surfaces.
 - 3. Protect work of other trades from damage.
 - 4. Remove masking and other protective measures at completion of stucco Work.
- H. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SURFACE PREPARATION

- A. Removal:
- 1. Remove delaminated, cracked, unsound, loose, and otherwise deteriorated existing stucco designated by Architect/Engineer.
 - 2. Remove additional sound stucco to logical terminations and to expose substrate at areas designated by Architect/Engineer.
 - 3. Removal of existing stucco by saw-cutting is required to minimize oscillating or impact demo equipment. Perimeter saw-cutting of removal area is to incorporate horizontal and vertical cuts only; diagonal transitions are not allowed.
 - 4. Do not damage existing metal lath during saw-cutting operations. Leave minimum 4 inches of existing, undamaged metal lath to allow for splice connection of new metal lath.
- B. Installer shall examine light-gage metal framing to ensure that it is properly prepared and ready to receive new sheathing and stucco system.
- 1. Installer shall report in writing to Architect/Engineer conditions which may adversely affect sheathing and stucco system installation or performance.
 - 2. Do not proceed with sheathing, water-resistive barrier, and stucco installation until unsatisfactory conditions have been corrected and reviewed by Architect/Engineer.
 - 3. Commencing installation constitutes acceptance of Work surfaces and conditions.
 - 4. Allow Architect/Engineer 24 hours to observe completed surface preparation.
- C. Preparation:
- 1. Repair damaged existing substrates
 - 2. Clean substrates to receive stucco and remove deleterious substances and obstructions that might impair stucco Work.
- D. Installer shall examine substrate to ensure that it is properly prepared and ready to receive stucco system, and conforms to requirements of ASTM C926.
- 1. Installer shall report in writing to Architect/Engineer conditions which may adversely affect stucco system installation or performance.
 - 2. Do not proceed with stucco installation until unsatisfactory conditions have been corrected and reviewed by Architect/Engineer.

3.4 INSTALLATION

- A. Refer to Section 07 62 00 Sheet Metal Flashing and Trim.
- B. Exterior Sheathing: Install new sheathing where required.

- C. Provide and install continuous air-moisture barrier and water-resistive barrier and flashings. Include air/water barriers on surfaces indicated on Drawings, in accordance with details shown on Drawings and in strict accordance with air/water barrier manufacturer's instructions, sequencing, and recommendations, unless otherwise directed in writing by Architect/Engineer. Apply air/water barrier material to form a seal with strips and transition strips and to achieve a continuous air/water barrier according to air/water barrier manufacturer's written instructions and details. Apply air/water barrier material within manufacturer's recommended application temperature ranges.
- a. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
 - b. Limit priming to areas that will be covered by air/water barrier material on same day. Re-prime areas exposed for more than 24 hours.
 - c. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.
2. Air/water barriers: Apply continuous unbroken air/water barrier material to substrates, taping joints and using accessory flashings where required.
- D. Water-Resistive Barrier: Install new water-resistive barrier.
1. Protect existing water-resistive barrier during stucco removal.
 2. New barrier is to be ship-lapped into existing water-resistive barrier with minimum 6-inch lap.
- E. Metal Lath: Install according to ASTM C1063.
1. Fasten to substrate and accessories at 6 inches on center.
 2. Laps:
 - a. Lap existing lath 3 inches at edges of removal areas and connect with tie wire.
 - b. Provide 1 inch minimum side and end laps. Tie with galvanized wire at 6 inches on center. Leave 1/4 inch minimum tails tying upwards. Stagger ends of adjoining lath.
 3. Use Cornerite and splice with lath at both sides of all interior and exterior corners.
 4. Fur lath at least 1/4 inch off solid substrates with furring attachments or self-furring lath.
 5. Lath shall be discontinuous at expansion and control joints. Secure lath to expansion and control joints at each side of joints. Lap or splice lath at interior and exterior corners.
- F. Accessories: Install accessories according to ASTM C1063 at locations to match existing and as indicated on Drawings.
1. Install longest possible lengths, with no termination within 24 inches of intersection, except for pre-manufactured trim accessory joint intersections.
 2. Install straight, level, and plumb, without twist or bow. Butt and align ends.
 3. Position so that lath and flanges will be fully embedded in stucco.
 4. Secure rigidly in place with fasteners 6 inches maximum on center.
 5. Attach lath with tie wire 6 inches maximum on center.
 6. Where vertical and horizontal exterior plaster surfaces meet, provide a soffit drip.
 7. Control and Expansion Joints:
 - a. Install vertical joints continuously and abut horizontal joints to vertical; do not attach horizontal joints across vertical joint.
 - b. Install joints to meet at corners.
 - c. Apply sealant at intersecting vertical and horizontal joints.
- G. Provide temporary screeds as necessary to ensure uniform thickness of stucco, flat surfaces, and accurate contours and profiles.

H. Batching and Mixing:

1. Size mixer to produce batches that can be applied within 1 1/2 hours of mixing.
2. Accurately measure ingredients, including water, by volume. Use calibrated boxes or buckets. Do not use shovels. Proportion successive batches alike.
 - a. Use damp, loose sand.
 - b. Add pigments or other specified admixtures to batch in accordance with manufacturer's recommendations.
 - c. Do not use frozen materials.
3. Mix materials in mechanical mixers for minimum of two minutes or until ingredients present uniform color in mixer. Use minimum amount of water required to produce stucco of workable consistency.
4. Mix each batch separately; double batching with single batch discharge shall not be permitted.
5. Maintain mixer in clean condition before, during, and after stucco preparation. Remove partially set and hardened stucco from mixer drum before next batch. If mixer was previously used to prepare gypsum plaster, thoroughly clean prior to preparation of cement stucco.
6. Batch and mix factory-prepared finish coat stucco in accordance with manufacturer's recommendations.
7. Protect mixture from contamination and evaporation.

I. Stucco Application:

1. General:
 - a. Dampen surfaces with fog spray prior to application of next coat. Do not over-saturate.
 - b. Apply stucco coats to entire surface with specified total thickness. Do not apply to frozen substrate or substrate containing frost.
 - c. Apply, cure, and protect stucco coats from drying, uneven or excessive evaporation, and strong natural or artificial blasts of dry air during curing period.
 - 1) Use procedures required by climatic conditions, including moist curing, coverings, and barriers to deflect sunlight and wind.
 - 2) Protect stucco coats from freezing for not less than 24 hours after set.
 - 3) Cover incomplete Work with plastic sheets at the end of the day.
2. Slurry Coat: Apply on concrete, CMU, cement stucco substrates, and edges of existing stucco.
 - a. Wet substrate and dry to damp, but not glistening wet, condition.
 - b. Apply slurry coat and work into substrate with stiff brush.
 - c. Apply before slurry coat stiffens or end of bonding agent pot life. Do not retemper.
3. Scratch Coat:
 - a. Apply scratch coat (first base coat) with sufficient pressure and material to ensure tight contact with and complete embedding of metal lath, at thickness in accordance with ASTM C926.
 - b. Apply scratch coat within 30 minutes of applying slurry coat and before scratch coat stiffens. Do not retemper.
 - c. Immediately scratch horizontally to provide mechanical key for brown coat.
4. Brown Coat:
 - a. Apply brown coat (second base coat) as soon as scratch coat is stiff enough to receive it without deformation or displacement, at thickness in accordance with ASTM C926.
 - b. Apply before brown coat stiffens. Do not retemper.
 - c. Rod surface to true, even plane, and scratch to uniformly rough surface to provide bond for finish coat.

- d. Moist-cure no more than 72 hours with fog spray of water. Protect from direct sunlight and wind.
- 5. Finish Coat:
 - a. Apply finish coat not less than five days after completion of brown coat, with thickness of 1/8 inch.
 - b. Apply in consistency required to achieve and produce color and textured finish as approved in mockup and to match adjacent existing stucco. Modify mix and increase thickness if required to provide finish of uniform texture and thickness.
 - c. Do not deviate more than $\pm 1/8$ inch in 10 feet from true plane in finished surfaces, as measured by 10-foot straightedge placed on surface.
 - d. Protect from direct sunlight and wind and maintain at minimum relative humidity of 75 percent for at least 72 hours after application. Do not moist cure.
 - e. Leave finished surface free from tool marks and other blemishes, and ready to receive field-applied coating.

3.5 FIELD QUALITY CONTROL

- A. Inspections: Air-moisture barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:
 - 1. Continuity of air-moisture barrier system has been achieved throughout the work with no gaps or holes.
 - 2. Continuous structural support of air-moisture barrier system has been provided.
 - 3. Site conditions for application temperature and dryness of substrates have been maintained.
 - 4. Maximum exposure time of materials to UV deterioration has not been exceeded.
 - 5. Surfaces have been primed, if applicable.
 - 6. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
 - 7. Termination mastic has been applied on cut edges.
 - 8. Strips and transition strips have been firmly adhered to substrate.
 - 9. Compatible materials have been used.
 - 10. Transitions at changes in direction and structural support at gaps have been provided.
 - 11. Connections between assemblies (air-moisture barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
 - 12. All penetrations have been sealed.
- B. Repair damage to air barriers; follow manufacturer's written instructions.
- C. Stucco: Completed Work shall match approved mockup for color and texture, in opinion of Architect/Engineer, and shall be free of visible and hidden damage and distress.
- D. Stucco: Remove damaged or distressed portions of stucco Work, as designated by Architect/Engineer, either partial or full depth as necessary, and reapply stucco system, at no cost to Owner. Extend repairs over sufficient area such that patching will not be visually apparent.
- E. Removal of Stucco:
 - 1. Remove delaminated, cracked, unsound, loose, and otherwise damaged or distressed stucco Work designated by Architect/Engineer.
 - 2. Remove additional sound stucco to logical terminations and to expose substrate at areas designated by Architect/Engineer.

3. Perform removal and replacement work in accordance with the relevant provisions specified herein.

3.6 CLEANING

- A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.
- B. After completing stucco Work:
 1. Clean spillage, overspray, and spatter from adjacent surfaces, using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
 2. Repair or replace surfaces stained, marred, or otherwise damaged during stucco Work.
 3. Clean up debris and surplus materials and remove from Site.
- C. Waste Management:
 1. Collect surplus stucco materials that cannot be reused and deliver to recycling or disposal facility.
 2. Treat materials that cannot be reused as hazardous waste and dispose of in an appropriate manner.

END OF SECTION