PROJECT MANUAL

ROOFING AND MASONRY REHABILITATION
WILL COUNTY ADULT DETENTION FACILITY

95 SOUTH CHICAGO STREET

JOLIET, ILLINOIS

WJE No. 2023.0872

August 8, 2023

Architect/Engineer
WISS, JANNEY, ELSTNER ASSOCIATES, INC.
330 Pfingsten Road
Northbrook, Illinois 60062-2095
(847) 272-7400

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INVITATION TO BID

PROJECT:

Roofing and Masonry Rehabilitation
Will County Adult Detention Facility
95 South Chicago Street
Joliet, Illinois
WJE No. 2023.0872

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:

Thursday September 7, 2023
2:00 PM
Will County ADF, East Entrance

BID DUE:

Friday September 22, 2023, 11:00 AM

Submit sealed bids labeled "Roofing and Masonry Rehabilitation-Will County Adult Detention Facility" 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.

SUMMARY OF THE WORK:

Roofing Demolition:

a. Remove stone ballast surfacing and discard.
b. Except at Area 5, remove the existing EPDM membrane and leave the insulation in-place. Replace wet and damaged materials on a unit price basis.
c. At Area 5, Remove the existing roof assembly down to the level of the concrete roof deck. Completely remove all loose roofing materials and debris from the deck surface. Roofing materials that are completely adhered to the deck may remain. Clean up debris on a daily basis.
d. Disconnect, raise, and re-set rooftop equipment (RTUs, vents, and other curbed penetrations) to establish suitable clearance heights for new roof flashings. Coordinate all rooftop equipment shut-downs and re-starts with the owner's designated site representative.
e. Remove and discard sheet metal copings.
f. Remove and discard security wire at Area 1 perimeter.
g. Repair or replace deteriorated metal deck areas on a unit cost basis.
h. Repair deteriorated concrete decking on a unit cost basis.

Roofing Installation- Base Bid (Except Area 5):

a. Over the existing insulation, install a base one layer of 1-1/2 inch polyisocyanurate insulation, mechanically attached. Omit this layer at Area 12
b. Adhere a high density polyisocyanurate coverboard over the insulation. (Cover board to be mechanically fastened at Area 12).
c. Install a 60 mil fully adhered white EPDM membrane over the cover board layer.
d. Install a white EPDM membrane flashing system at all roof curbs, walls, and roof projections.
e. Install new sheet metal cone flashings and storm collars at sheet metal vent pipes.
f. Install new galvanized steel posts at existing security camera and antenna locations and mount to roof deck.
g. Install white pre-molded pipe boots at all pipe penetrations.
h. Raise rail curbs below heavy piping to allow for minimum 8-inch flashing height.
i. Install new sheet metal counterflashings at perimeters and equipment.
j. Install new sheet metal coping system at all parapet walls.
k. Install new security wire fencing where existing at Area 1.
l. Provide a 20-year manufacturer’s No-Dollar Limit guarantee and a 2-year contractor’s workmanship and materials warranty.

Roofing Installation- Base Bid (Area 5 Only)

a. Clean concrete deck of all dust and debris. Apply primer as required by membrane manufacturer and install a self-adhered vapor retarder membrane. Prime membrane at all side laps and head laps before applying adjacent sheets.
b. Adhere a base layer of 1-1/2 inch polyisocyanurate insulation to the vapor retarder in low-rise foam adhesive.
c. Adhere a ¼ inch per foot tapered polyisocyanurate insulation system to the base layer of insulation in low-rise foam adhesive.
d. Adhere a high density polyisocyanurate coverboard over the tapered insulation.
e. Install a 60 mil fully adhered white EPDM membrane over the cover board layer.
f. Install a white EPDM membrane flashing system at all roof curbs, walls, and roof projections.

g. Install new sheet metal cone flashings and storm collars at sheet metal vent pipes.
h. Install new galvanized steel posts at existing security camera and antenna locations and mount to roof deck.
i. Install white pre-molded pipe boots at all pipe penetrations.
j. Raise rail curbs below heavy piping to allow for minimum 8-inch flashing height.
k. Install new sheet metal counterflashings at perimeters and equipment.
l. Install new sheet metal coping system at all parapet walls.
m. Provide a 20-year manufacturer's No-Dollar Limit guarantee and a 2-year contractor's workmanship and materials warranty.

Base Bid- Masonry Restoration

a. Grind and point 100 percent of CMU joints at exterior walls of original building.
b. Remove existing sealant and joint material at all CMU building joints, control joints, perimeter joints at windows, doors, and louvers, and at joints around penetrations through CMU exterior walls. Install new backer rod and sealant.
c. Repair cracks in split-face CMU at isolated locations throughout the original building facades (outer wythe only) at locations designated by A/E in the field. Repair is to include routing cracks, installing backer rod and sealant, and installation of helical anchors at both sides of the crack into sound CMU backup. Provide an allowance of 550 linear feet of crack repair.
d. Remove and replace severely cracked split-face CMU (outer wythe only) at locations designated by A/E in the field. Provide an allowance of 250 replacement CMU.
e. Sawcut new vertical control joints in the split-face CMU exterior walls (full depth of outer wythe only) at locations shown in the Drawings. Install helical anchors at both sides of new control joints into sound CMU backup and install neoprene joint filler and sealant at control joint.
f. At window heads designated in the Drawings, remove split-face CMU (outer wythe) above isolated window heads, clean and paint steel lintel, install through-wall flashing, and install new CMU to match original.
g. After all exterior wall repairs are complete, apply a new elastomeric coating over the exterior surface of all CMU. CMU surfaces are to be cleaned and prepared in accordance with coating manufacturer's recommendations.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

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INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.1 AIA DOCUMENT A701-1997

A. Refer to AIA Document A701-1997, 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 Schedule site visits by contacting Mr. Keith Breausche 815-774-7952.

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., Friday, September 22, 2023.***
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., Friday, September 22, 2023,*** 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: 2023-85 Adult Detention Facility Roof Project

Bids due: ***Friday, September 22, 2023, 11:00 A.M.***

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 Kevin Lynn, in writing at klynn@willcountyillinios.com. 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:

Any and all submissions to the County of Will become the property of the County of Will 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) and other applicable laws and rules, 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. 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 of Will receives a request for a document submitted, the County of Will shall provide notice to contractor as soon as practicable. Regardless, contractor will be responsible for any costs or damages associated with defending your request for exempt treatment. Furthermore, contractor warrants that County of Will's responses to requests for a document submitted that is not requested to be exempt will not violate the rights of any third party.

Please be advised that if your proposal is accepted by the County of Will all related records maintained by, provided to, or required to be provided to the County of Will during the contract duration are subject to FOIA. In the event the County of Will receives a request for a document relating to contractor, its provision of services, or the arranging for the provision of services, the County of Will shall provide notice to contractor as soon as practicable 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, making reference to the specific FOIA provision applicable without simply making a general claim that the information is “confidential,” “proprietary,” “exempt from disclosure,” or the like. Regardless, contractor will be responsible for any costs or damages associated with defending the request for exempt treatment. Furthermore, contractor will warrant that County of Will's responses to requests for a document relating to 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.

Please be advised also that FOIA provides that any record in the possession of a party with whom the County of Will has contracted to perform a governmental function on behalf of the County of Will, and that directly relates to the governmental function and is not otherwise exempt under FOIA is considered a public record of the County of Will for purposes of FOIA. 5 ILCS 140/7(2). As such, upon request by the County of Will (or any of its officers, agents, employees or officials), the contractor shall provide to the County of Will at no cost and within the time frames of FOIA a copy of any "public record" as required by FOIA and in compliance with the provisions of FOIA. After request by the County of Will, 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, making reference to the specific FOIA provision applicable without simply making a general claim that the information is “confidential,” “proprietary,” “exempt from disclosure,” or the

like. Regardless, contractor will be responsible for any costs or damages associated with defending the request for exempt treatment.

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.

END OF SECTION

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BID FORM

BID FOR: **Roofing and Masonry Rehabilitation**
Will County Adult Detention Facility
95 South Chicago Street
Joliet, Illinois

BID FROM: _____
(Bidder's Name)

_____

_____
(Bidder's Address)

Date:_____, 2018

The undersigned acknowledges receipt of:

A. Project Manual and Drawings for Roofing and Masonry Rehabilitation at
Will County Adult Detention Facility
95 South Chicago Street 60436
Joliet, Illinois
Dated: August 8, 2023

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 PPORTION 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 Ballasted EPDM roofing and flashings as shown in the drawings and installation of a new 60 mil white EPDM roofing system and associated sheet metal flashings.	$_____
L3.	Grind and point 100 percent of the CMU mortar joints at exterior walls of original building.	$_____
L4.	Remove existing sealant and joint material at all CMU building joints, control joints, perimeter joints at windows, doors, and louvers, and at joints around penetrations through CMU exterior walls. Install new backer rod and sealant.	$_____
L5.	Repair cracks in split-face CMU at isolated locations throughout the original building facades (outer wythe only) at locations designated by A/E in the field. Repair is to include routing cracks, installing backer rod and sealant, and installation of helical anchors at both sides of the crack into sound CMU backup. Provide an allowance of 2,000 linear feet of crack repair.	$_____
L6.	Remove and replace severely cracked split-face CMU (outer wythe only) at locations designated by A/E in the field. Provide an allowance of 250 replacement CMU.	$_____
L7.	Sawcut new vertical control joints in the split-face CMU exterior walls (full depth of outer wythe only) at locations shown in the Drawings. Install helical anchors at both sides of new control joints into sound CMU backup and install neoprene joint filler and sealant at control joint.	$_____
L8.	At window heads designated in the Drawings, remove split-face CMU (outer wythe) above isolated window heads, clean and paint steel lintel, install through-wall flashing, and install new CMU to match original.	$_____
L9.	At second floor level windows within the exterior wall repair work areas, restore existing steel frames by removing failed paint coating and corrosion product and applying a new coating system.	$_____
L10.	After all exterior wall repairs are complete, clean all CMU surfaces to remove staining, soiling, efflorescence, and failed existing paint coating and apply a new elastomeric coating over the exterior surface of all CMU. CMU surfaces are to be cleaned and prepared in accordance with coating manufacturer's recommendations.	$_____
L11.	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.	Alternate 1 – Substitute a 90 mil white EPDM roofing membrane in lieu of the 60 mil system in Item L2. (including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.)	$_____
A2.	Perform above-referenced base bid scope of work for exterior wall repairs at external courtyards indicated in the Drawings. Provide an allowance of 500 linear feet of CMU crack repairs and 50 replacement CMU. Access and general conditions (including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.) are to be included.	$_____
A3.	Perform above-referenced base bid scope of work for exterior wall repairs at internal courtyards without overhead security canopy. Provide an allowance of 100 linear feet of CMU crack repairs and 10 replacement CMU. Access and general conditions (including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.) are to be included.	$_____
A4.	Perform above-referenced base bid scope of work for exterior wall repairs at internal courtyards with overhead security canopy. Provide an allowance of 100 linear feet of CMU crack repairs and 10 replacement CMU. Access and general conditions (including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.) are to be included.	$_____

UNIT PRICE PORTION OF BASE BID

UNIT PRICES: The following Unit Prices shall govern for 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 galvanized metal deck.	$_____ Per sf
U4.	Apply rust inhibitive coating over metal deck surface corrosion.	$_____ Per sf
U5.	Grind and point CMU mortar joints.	$_____ Per lin. ft
U6.	Grind out existing mortar, install helicals, and install sealant and backer rod for new control joints.	$_____ Per lin. ft
U8.	Remove existing sealant, prepare surfaces, and install new sealant at existing control joints, building joints, and	$_____ Per lin. ft

	fenestration perimeter joints.	
U9.	Install helical repair anchor at new control joints and CMU replacements.	$_____ Per anchor
U10.	Rout and seal crack in split-face CMU.	$_____ Per lin. ft
U11.	Remove and replace isolated split-face CMU.	$_____ Per CMU
U12.	Remove CMU outer wither at 1st and 2nd floor window heads, clean and paint steel lintel, and install through wall flashing.	$_____ Per lin. ft
U13.	Apply elastomeric coating over CMU exterior walls.	$_____ 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 the spring of 2019. 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. Work includes the following activities:

1. Base Bid - Demolition Work

   a. Remove stone ballast surfacing and discard.
   b. Except at Area 5, remove the existing EPDM membrane and leave the insulation in-place. Replace wet and damaged materials on a unit price basis.
   c. At Area 5, Remove the existing roof assembly down to the level of the concrete roof deck. Completely remove all loose roofing materials and debris from the deck surface. Roofing materials that are completely adhered to the deck may remain. Clean up debris on a daily basis.
   d. Disconnect, raise, and re-set rooftop equipment (RTUs, vents, and other curbed penetrations) to establish suitable clearance heights for new roof flashings. Coordinate all rooftop equipment shut-downs and re-starts with the owner's designated site representative.
   e. Remove and discard sheet metal copings.
   f. Remove and discard security wire at Area 1 perimeter.
   g. Repair or replace deteriorated metal deck areas on a unit cost basis.
   h. Repair deteriorated concrete decking on a unit cost basis.

2. Base Bid (Except Area 5)– 60 mil white EPDM membrane roofing

   a. Over the existing insulation, install a base one layer of 1-1/2 inch polyisocyanurate insulation, mechanically attached. Omit this layer at Area 12
   b. Adhere a high density polyisocyanurate coverboard over the insulation. (Cover board to be mechanically fastened at Area 12).
   c. Install a 60 mil fully adhered white EPDM membrane over the cover board layer.

d. Install a white EPDM membrane flashing system at all roof curbs, walls, and roof projections.
e. Install new sheet metal cone flashings and storm collars at sheet metal vent pipes.
f. Install new galvanized steel posts at existing security camera and antenna locations and mount to roof deck.
g. Install white pre-molded pipe boots at all pipe penetrations.
h. Raise rail curbs below heavy piping to allow for minimum 8-inch flashing height.
i. Install new sheet metal counterflashings at perimeters and equipment.
j. Install new sheet metal coping system at all parapet walls.
k. Install new security wire fencing where existing at Area 1.
l. Provide a 20-year manufacturer's No-Dollar Limit guarantee and a 2-year contractor's workmanship and materials warranty.

3. Base Bid (<u>Area 5 Only</u>)– 60 mil white EPDM membrane roofing

a. Clean concrete deck of all dust and debris. Apply primer as required by membrane manufacturer and install a self-adhered vapor retarder membrane. Prime membrane at all side laps and head laps before applying adjacent sheets.
b. Adhere a base layer of 1-1/2 inch polyisocyanurate insulation to the vapor retarder in low-rise foam adhesive.
c. Adhere a ¼ inch per foot tapered polyisocyanurate insulation system to the base layer of insulation in low-rise foam adhesive.
d. Adhere a high density polyisocyanurate coverboard over the tapered insulation.
e. Install a 60 mil fully adhered white EPDM membrane over the cover board layer.
f. Install a white EPDM membrane flashing system at all roof curbs, walls, and roof projections.
g. Install new sheet metal cone flashings and storm collars at sheet metal vent pipes.
h. Install new galvanized steel posts at existing security camera and antenna locations and mount to roof deck.
i. Install white pre-molded pipe boots at all pipe penetrations.
j. Raise rail curbs below heavy piping to allow for minimum 8-inch flashing height.
k. Install new sheet metal counterflashings at perimeters and equipment.
l. Install new sheet metal coping system at all parapet walls.
m. Provide a 20-year manufacturer's No-Dollar Limit guarantee and a 2-year contractor's workmanship and materials warranty.

4. Base Bid- Exterior Masonry Wall Repairs

a. Grind and point 100 percent of CMU joints at exterior walls of original building.
b. Remove existing sealant and joint material at all CMU building joints, control joints, perimeter joints at windows, doors, and louvers, and at joints around penetrations through CMU exterior walls. Install new backer rod and sealant.
c. Repair cracks in split-face CMU at isolated locations throughout the original building facades (outer wythe only) at locations designated by A/E in the field. Repair is to include routing cracks, installing backer rod and sealant, and installation of helical anchors at both sides of the crack into sound CMU backup. Provide an allowance of 2,000 linear feet of crack repair.
d. Remove and replace severely cracked split-face CMU (outer wythe only) at locations designated by A/E in the field. Provide an allowance of 250 replacement CMU.
e. Sawcut new vertical control joints in the split-face CMU exterior walls (full depth of outer wythe only) at locations shown in the Drawings. Install helical anchors at both sides of new control joints into sound CMU backup and install backer rod and sealant at control joint.

f. At window heads designated in the Drawings, remove split-face CMU (outer wythe) above isolated window heads, clean and paint steel lintel, install through-wall flashing, and install new CMU to match original.
g. At second floor level windows within the exterior wall repair work areas, restore existing steel frames by removing failed paint coating and corrosion product and applying a new coating system.
h. After all exterior wall repairs are complete, clean all CMU surfaces to remove staining, soiling, efflorescence, and failed existing paint coating and apply a new elastomeric coating over the exterior surface of all CMU. CMU surfaces are to be cleaned and prepared in accordance with coating manufacturer's recommendations.
i. Provide mobilization, scaffolding, and general conditions as required to access the work areas and any necessary protection to implement the above scope of work.

5. Alternate No. 1 - Roofing

a. Substitute a 90 mil white EPDM roofing membrane in lieu of the 60 mil system in Item L2.(including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.)

6. Alternate No. 2 – Exterior Masonry Repairs at External Screen Walls

a. Perform above-referenced base bid scope of work for exterior wall repairs at external courtyards indicated in the Drawings. Provide an allowance of 500 linear feet of CMU crack repairs and 50 replacement CMU. Access and general conditions (including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.) are to be included.

7. Alternate No. 3 – Exterior Masonry Repairs at Internal Courtyards

a. Perform above-referenced base bid scope of work for exterior wall repairs at internal courtyards without overhead security canopy. Provide an allowance of 100 linear feet of CMU crack repairs and 10 replacement CMU. Access and general conditions (including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.) are to be included.

8. Alternate No. 4 – Exterior Masonry Repairs at Internal Courtyards

a. Perform above-referenced base bid scope of work for exterior wall repairs at internal courtyards with overhead security canopy. Provide an allowance of 100 linear feet of CMU crack repairs and 10 replacement CMU. Access and general conditions (including costs for performance bond, payment bond, all necessary permits, access, sidewalk protection, etc.) are to be included.

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 rom 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 copiy 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 jjua 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.
   2. Organize into suitable sets of manageable size, with a separate section for each product, material, and finish.

a. Bind and index data in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, sized to receive 8-1/2-by-11-inch paper and in thickness necessary to accommodate contents, with pockets inside covers to receive folded oversized sheets..
b. Provide heavy, paper dividers with plastic-covered tabs for each separate product. Mark tab to identify product or installation.
c. Identify each binder on front and spine with typed or printed title "PRODUCT MAINTENANCE MANUAL," Project name, and subject matter of contents.
d. Scan the maintenance manual and assemble the complete maintenance 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.

3. Submit one set of binders and one scanned copy of maintenance manual package.

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 04 06 10

MASONRY MORTAR

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes preparation and mixing of mortar for setting and pointing concrete masonry units.

B. Related Sections include the following:
   1. Section 04 22 00 – Concrete Unit Masonry
   2. Section 04 91 60 – Repointing with Cement-Lime Mortar

1.2 REFERENCES

A. Except as modified by the Project Specifications, applicable portions of the following reference standards shall govern the work. All standards latest edition as of the date of the Specifications:
   1. Mortar:
      a. American Society for Testing and Materials (ASTM)
         1) C144 - Specifications for Aggregate for Masonry Mortar
         2) C150 - Specifications for Portland Cement
         3) C207 - Specifications for Hydrated Lime for Masonry Purposes
         4) C270 - Specifications for Mortar for Unit Masonry
         5) C780 - Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry

      b. National Concrete Masonry Association (NCMA) TEK Notes
         1) TEK 03-01C – All Weather Concrete Masonry Construction”
         2) TEK 09-01A – Mortars for Concrete Masonry

1.3 DEFINITIONS

A. Original mortar: Mortar used in the original construction of the masonry wall

B. Pointing: Installing new mortar into a properly prepared joint between masonry units.

C. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

D. Repointing: Removal of the outer portion of existing masonry joints from between masonry units to a specified depth and installing new mortar as specified.

E. Setting mortar: Mortar used in original construction to act as a leveling and bonding agent for the masonry units.

F. Tuckpointing: Synonymous with repointing

1.4 SUBMITTALS

A. Product Data: Materials description for all materials to be used in Work.

B. Material Certificates: Prior to delivery, submit to the Owner and Architect/Engineer certificates attesting to compliance with the applicable Specifications referenced herein of the following:
   1. Portland cement. Include brand, type, and name of manufacturer.
   2. Hydrated lime. Include brand, type, and name of manufacturer
   3. Aggregate. Include type, sieve analysis and supplier.
   4. Color admixtures. Include brand, type, and name of manufacturer
   5. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.

C. Test Reports: Test reports from an independent laboratory for all required tests.

D. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.
   1. Include test reports, per ASTM C 780, for mortar mixes required to comply with property specification.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated, as documented according to ASTM E 548.

B. Contractor Qualifications:
   1. Contractor: Must have a minimum of five (5) years experience in construction and supervision of masonry work.
   2. Masons: Must have a minimum of two (2) years experience on construction of masonry.
   3. Mixers: Must have a minimum of two (2) years experience in Preparation of masonry mortar.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the job site in manufacturer's sealed packaging and store unopened until required for use.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

PART 2 PRODUCTS

2.1 MATERIALS

A. Cementitious Materials (MASONRY CEMENTS WILL NOT BE ALLOWED)
   1. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
   2. Hydrated Lime: ASTM C207, Type S

B. Aggregates for Mortar
   1. ASTM C144 except that the grading shall comply with the limits specified in Section 4.3 of BIA M1. Sand shall contain no more than 50 parts per million of chloride ions. Sand shall be free of organic contaminants.
   2. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
   3. For joints less than 1/4 inch (6.5 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
   4. White-Mortar Aggregates: Natural white sand or crushed white stone.
   5. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

C. Water
   1. Clean and potable.
   2. Free from deleterious amounts of acids, alkalis or organic materials.

D. Admixtures
   1. No admixtures shall be used without written approval, unless otherwise specified.
   2. No calcium chloride or admixtures containing calcium chloride shall be used in the mortar.
   3. No air-entraining admixtures or material containing air-entraining admixtures shall be used in the mortar.

E. Mortar Pigments
   1. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.
   2. Colored Cement Product: Packaged blend made from portland cement and lime and mortar pigments, all complying with specified requirements, and containing no other ingredients.
      a. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
      b. Pigments shall not exceed 10 percent of portland cement by weight.

2.2 MORTAR MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
   1. Do not use calcium chloride in mortar.
   2. Limit cementitious materials in mortar to portland cement and lime.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
   1. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated.
   1. For reinforced masonry, use Type N.
   2. For mortar parge coats, use Type N.
   3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
   4. Tuckpointing mortar shall be prehydrated Type N.

D. Color Matching:
   1. Match color of mortar to the existing adjacent mortar joints, unless specified otherwise.

E. Pigmented Mortar: Use colored cement product containing only metallic oxides [or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products].
   1. Pigments shall not exceed 10 percent of portland cement by weight.
   2. Pigments containing carbon black shall not exceed 2 percent of Portland cement by weight.

F. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates and natural color or white cement as necessary to produce required mortar color.

PART 3 EXECUTION

3.1 MORTAR MIXING

A. Except as specified herein, mix in accordance with requirements of BIA M1.

B. Control batching procedure to insure proper proportions by measuring materials by volume with known volume containers.

C. Do not measure mortar materials by shovels.

3.2 REPOINTING MORTAR MIXING

A. Use Type N mortar proportion for re-pointing mortar mix.

B. Pre-hydrate mortars thoroughly mixing all ingredients except water; then, mix again, adding only enough water to produce a damp unworkable mix which will retain its form when pressed into a ball. After keeping mortars in this dampened condition for 1 to 1-1/2 hours, add sufficient water to bring it to the proper consistency; that is, somewhat drier than conventional masonry mortars. Do not use mortar if more than 2-1/2 hours has elapsed since the initial mixing of the mortar.

3.3 MORTAR INSTALLATION

A. Install in accordance with BIA Standards.

B. If mortar begins to stiffen, it may be retempered.

C. Use mortar within 2-1/2 hours of initial mixing.

3.4 CLEANING

A. At the conclusion of masonry Work remove all equipment and surplus material used for mixing mortar, clean up all debris and refuse and remove same from the site

END OF SECTION

SECTION 04 22 00

CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish all labor, materials, tools and equipment and perform all Work necessary for and incidental to the installation of concrete unit masonry as shown on the drawings and specified herein.

B. Related requirements specified elsewhere:
   1. Section 04061 - Masonry Mortar
   2. Section 04916 - Repointing with Cement-Lime Mortar

1.2 REFERENCES

A. Except as modified by the Project Specifications, applicable portions of the following reference standards shall govern the Work.
   1. ACI 530 – Building Code Requirements for Masonry Structures
   2. ACI 530.1 – Specification for Masonry Structures
   3. ASTM C90 – Specification for Hollow Load Bearing Concrete Masonry Units
   4. ASTM C426 – Test Method for Drying Shrinkage of Concrete Block

B. Except as modified by the Project Specifications, applicable portions of the following reference documents shall govern the Work.
   1. National Concrete Masonry Association (NCMA) TEK Notes
      a. TEK 01-01F – ASTM Specifications for Concrete Masonry Units
      b. TEK 03-01C – All Weather Concrete Masonry Construction”
      c. TEK 03-06C – Concrete Masonry Veneers
      d. TEK 05-01B – Concrete Masonry Veneer Details
      e. TEK 10-04 – Crack Control for Concrete Brick & Other CM Veneers
      f. TEK 12-01B – Anchors and Ties for Masonry
      g. TEK 19-01 – Water Repellents for Concrete Masonry Walls

1.3 SUBMITTALS

A. Submit the following:
   1. Certification: Furnish test reports, or other acceptable evidence to indicate compliance with requirements for masonry units.

1.4 QUALITY ASSURANCE

A. Qualifications
   1. Contractor: Must have a minimum of five (5) years experience in construction or supervision of masonry Work.
   2. Masons: Must have a minimum of two (2) years experience in construction of masonry Work, except for the required apprentices who shall be supervised by experienced masons.

B. Comply with all laws, ordinances, rules, regulations and orders of public authorities having jurisdiction over this part of the Work.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver and handle materials in such a manner as to prevent damage. Store concrete unit masonry and packaged material above ground on wood pallets or blocking and protect from the weather until used. All damaged or otherwise unsuitable material, when so ascertained, shall be immediately removed from the jobsite.

1.6 JOB CONDITIONS

A. During cold weather perform masonry Work in accordance with NCMA-TEK 3-1A.

B. Protection of Work
   1. Wall covering
      a. During erection, cover all openings in walls with strong waterproof membrane at end of each day or shutdown.
      b. Cover partially completed walls when Work is not in progress.
      c. Extend cover minimum of 24 in. beyond each side of openings in walls.
      d. Hold cover securely in place.

C. Staining
   1. Prevent mortar from staining window and door frames and the face of masonry to be left exposed.
      h. Remove immediately mortar in contact with window and door frames and with face of such masonry.
      i. Protect all window and door frames, sills, ledges and projections from droppings of mortar, protect window and door frames and corners from damage during construction.

PART 2 PRODUCTS

2.1 MATERIALS

A. Split Face Concrete Masonry Units:
   1. Aggregate: Normal weight in accordance with ASTM C33.
   2. Hollow Units: ASTM C 90.
   3. Size: Faces of units shall be nominal 4 in. by 8 in. by 16 in. unless otherwise shown; thickness shall be as shown, or required by code.
   4. Integral Water Repellent: Units exposed to the exterior are to include an integral liquid polymeric water-repellent admixture. The integral water repellent admixture shall be “Dry Block” as manufactured by Grace Construction Products, Cambridge, Massachusetts (no substitutions). Proportions and mix design are to be in strict accordance with admixture manufacturer’s recommendations.
   5. Color: To match existing. Color samples must be submitted to and approved by the Owner and Architect/Engineer prior to manufacturing.
   6. Texture: To match existing. Texture samples are to be submitted with the color samples and are to be approved by the Owner and Architect/Engineer prior to manufacturing.

B. Mortar: As specified in Section 04061.

C. Preformed joint filler for control joints: Expanded closed cell neoprene by Hohmann & Barnard.

A. Masonry Veneer Ties.
   1. Stainless steel ties: All components - Type 304 stainless steel. Supply appropriate assemblies for varying cavity or collar joint conditions. Use one of the following products or an approved equal.
      a. Adjustable Speed Set Veneer-Tie (Type 5801), supplied by Prosoco, Inc.
         1) Fastener: Prosoco masonry fastener, brass expansion anchor.
      b. 315 Flexible Dovetail Brick Tie (stainless steel), supplied by Hohmann & Barnard, Inc. (Only for use if ties are installed in concurrence with laying brick.)
         1) Fastener: Aggre-Gator (1/4 inch diameter) bi-metal tapping screws, supplied by DeWalt Anchors and Fasteners.

B. Masonry Veneer Repair Anchors, Helical Type: Type 304 stainless-steel spiral rods designed to anchor to the backing and the veneer. Provide driven-in anchors designed to be installed in drilled holes and relying on the screw effect rather than an adhesive to secure them to the backup and the veneer.
   a. 10 mm Helifix Remedial Wall Tie, supplied by Helifix Ltd.
   b. 10 mm Stitch-Tie, supplied by Prosoco, Inc.

C. Rigid Insulation: 2 inch thick extruded polystyrene (XPS) foam rigid cavity insulation

PART 3 EXECUTION

3.1 PREPARATION

A. Examine all surfaces to receive the parts of the Work specified herein. Verify all dimensions of in-place and subsequent construction. Application or installation of materials constitutes acceptance of the adjacent and underlying construction.

3.2 INSTALLATION

A. Provide all masonry construction aligned, plumb and true in required layout, making straight level courses. Construct masonry to full thickness as shown with masonry units of sizes as noted and specified, using whole units wherever possible. Cut masonry neatly by power-saw to obtain sharp edges without damage. Build-in items furnished by other trades, and leave accurate openings necessary for subsequent installation of other Work. Fill solidly around conduit passing through masonry with mortar.

B. Hollow units shall be laid with full mortar coverage on horizontal and vertical face shells. Webs shall also be bedded in all courses of piers, columns, pilasters, adjacent to any cores to be grouted, and in the starting course on footings and solid foundation walls. Solid units shall be laid with full head and bed joints.

C. Head and bed joints shall be 3/8 in. thick. Joints shall be tooled when thumbprint hard with a round tool. Joints on unexposed interior surfaces shall be cut flush.

D. Coordinate the installation of flashing materials.

E. Placement of Lateral Ties
   1. Provide lateral ties at 16 in. on center horizontally and vertically at large wall rebuild areas. At isolated replacement units, provide one lateral tie per unit installed, minimum.

3.4 CONTROL JOINTS

A. Sawcut new vertical control joints in concrete masonry walls as shown on Drawings, 20 ft on center maximum.

3.5 CLEAN UP

A. All holes in joints of masonry surfaces to be exposed, or painted, shall be filled with mortar and suitably tooled. Concrete unit masonry walls shall be left clean and free from mortar spots and droppings. Any cracks in masonry shall be repaired. Defective joints shall be cut out and repointed.

B. At the conclusion of masonry work, remove all scaffolding and equipment used, in the Work, clean up all debris and refuse and surplus material and remove from premises.

END OF SECTION

SECTION 04 91 60

REPOINTING WITH CEMENT-LIME MORTAR

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes repointing of concrete masonry units as follows:
   1. Provide sample areas for repointing joints between concrete masonry units.
   2. Preparing and repointing mortar joint between existing concrete masonry units.
   3. Pointing mortar joints between new and existing (or reinstalled) concrete masonry units.
   4. Removal of masonry anchors and other extraneous items no longer in use unless identified or indicated to remain.

B. Related Sections include the following:
   1. Section 04 06 10 – Masonry Mortar
   2. Section 04 22 00 – Concrete Unit Masonry

C. Unit Prices: Unit prices for masonry
   1. Unit prices apply to authorized work covered by quantity allowances.
   2. Unit prices apply to additions/deletions from Work as authorized by Change Orders.
      a. Square feet of wall area
      b. Linear feet of joints

1.2 REFERENCES

A. Except as modified by Construction Documents, applicable portions of the latest editions of following reference documents shall govern the Work.
   1. BIA Tech Note 7F.

1.3 DEFINITIONS

A. In-situ mortar: Existing mortar including original setting mortar, pointing mortar and subsequently installed setting and repointing mortar

B. Half Moon: Refers to the configuration of a head joint that has been prepared by removing only a portion of the mortar in the joint by inserting a grinder into the joint and removing the mortar from bed joints.

C. Original mortar: Mortar used in the original construction of the masonry wall

D. Original pointing mortar: Mortar placed into a joint at the exposed outer edge from which fresh setting mortar is raked out during original construction of the masonry wall.

E. Point: The act of placing mortar into a properly prepared joint.

F. Repointing: The process of removal of hardened pointing mortar from between masonry units to a depth less than 1/3 of the depth of the units and placement of fresh mortar.

G. Setting mortar: Mortar used in original construction to act as a leveling and bonding agent for the masonry units.

H. Thumbprint hard: Mortar that has reached an initial set. Time required to achieve initial set varies based on masonry characteristics, weather conditions and mortar.

I. Tuckpointing: Synonymous with repointing.

J. Low-Pressure Spray: 100 to 400 psi ; 4 to 6 gpm.

K. Very Low Pressure Spray: less than 100 psi

L. Qualification Data: For restoration specialists including field supervisors and chemical manufacturer.

M. Restoration Program: For each phase of restoration process, provide detailed description of materials, methods, equipment, and sequence of operations to be used for each phase of restoration work including protection of surrounding materials on building and Project site.
   1. Include curing methods.
   2. Mortar removal techniques and equipment
   3. If materials and methods other than those specified in this section are proposed for any phase of restoration work, provide a written description, including evidence of successful use on comparable projects, and a testing program to demonstrate their effectiveness for this Project.

1.4 QUALITY ASSURANCE

A. Restoration Specialist Qualifications: Engage an experienced masonry restoration firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance.
   1. Contractor: Must have a minimum of ten (10) years experience in construction and supervision of masonry work.
   2. Masons: Must have a minimum of five (5) years experience in the installation of repointing mortar. Apprentices must be fully supervised by an experience tradesman.
   3. Field Supervision: Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that clay masonry restoration and cleaning are in progress. Supervisors shall not be changed during Project except for causes beyond the control of restoration specialist firm.

B. Mockups: Prepare mockups of repointing as follows to demonstrate aesthetic effects and qualities of materials and execution. Prepare mockups on existing walls under same weather conditions to be expected during remainder of the Work.
   1. Provide a sample(s) of each type of mortar installation, of the following items. Samples shall be prepared by qualified personnel who will be performing the work. Before work commences, the sample shall be approved by the Owner and Architect/Engineer. The approved sample shall be the standard for the work. Retain acceptable areas in undisturbed condition, suitably marked, during restoration as a standard for judging completed work.

      a. Sample should match existing mortar joint profile
      b. Sample should include a sample of cleaning mortar from concrete masonry units adjacent to joints.

c. Samples should cure a minimum of 14 days prior to Architect/Engineer's approval

2. Rake out joints in two separate areas approximately 36 inches high by 72 inches wide for each type of repointing required and repoint one of the two areas.

C. Field Quality Control: Work in place shall be subject to inspection testing. Work found to be unacceptable shall be replaced with new, acceptable work.

1.5 PROJECT CONDITIONS

A. Cold-Weather Requirements: Do not perform repointing when the ambient air temperature is less than or is expected to be less than 40 degrees Fahrenheit, unless Contractor provides cold weather protection recommended by BIA for cold weather masonry construction, as outlined in BIA Technical Note 1.

B. Hot-Weather Requirements: Do not perform repointing when the ambient air temperature is greater than 90 degree Fahrenheit, unless Contractor provides hot weather protection recommended by BIA for hot weather masonry construction as outlined in BIA Technical Note 1.

1.6 SEQUENCING AND SCHEDULING

A. Order materials at earliest possible date, to avoid delaying completion of the Work.

B. Order sand for repointing mortar immediately after approval of mockups. Take delivery of and store at Project site a sufficient quantity of sand to complete Project.

C. Perform masonry repointing work in the following sequence:
1. Rake out joints that are to be repointed.
2. Point mortar joints.

D. As scaffolding is removed, patch anchor holes used to attach scaffolding.

PART 2 PRODUCTS

2.1 MORTAR MATERIALS: SEE SECTION 04 06 10 – MASONRY MORTAR

2.2 CHEMICAL CLEANER:

A. Prosoco Sure Klean Limestone and Masonry Afterwash, an organic acidic cleaner, manufactured by Prosoco, Inc., Kansas City, Kansas.

B. Architect/Engineer approved equal.

PART 3 EXECUTION

3.1 PROTECTION

A. Comply with all local applicable codes and ordinances regarding, but not limited to noise and dust mitigation to surrounding areas.

B. Provide and maintain means to prevent the spread of dust, fumes, smoke and excessive noise within the building.

C. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from the work.
   1. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of the work.

D. Wall Covering:
   1. Cover wall when Work is not in progress in ground-out areas that have not yet been fully repointed
   2. Extend cover minimum of 24 in. beyond each side of the openings in walls.
   3. Hold cover securely in place.

E. Prevent mortar from staining face of surrounding masonry and other surfaces.
   1. Cover sills, ledges, and projections to protect from mortar droppings. Do not extend coverings into mortar joints.
   2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
   3. Immediately remove mortar in contact with exposed masonry and other surfaces.
   4. Clean mortar splatters from scaffolding at end of each day.

3.2 REPOINTING MASONRY

A. Rake out and repoint mortar joints to the following extent:
   1. All joints in areas indicated.
   2. Joints where mortar is missing or where they contain holes.
   3. Cracked joints where cracks can be penetrated at least 1/4 inch by a knife blade 0.027 inch thick.
   4. Cracked joints where cracks are 1/8 inch or more in width and of any depth.
   5. Joints where they sound hollow when tapped by metal object.
   6. Joints where they are worn back 1/4 inch or more from surface.
   7. Joints where they are deteriorated to point that mortar can be easily removed by hand.
   8. Joints, other than those indicated as sealant-filled joints, where they have been filled with substances other than mortar.

B. Rake out joints as follows:
   1. Remove mortar from joints to depth of 2 times joint width, but not less than 3/4 inch or not less than that required to expose sound, unweathered mortar. If unsound mortar extends more than 2 inches from the face of the units, work should not proceed and the Architect should be contacted immediately.
   2. Remove mortar from masonry joint surfaces to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
   3. Do not spall edges of masonry units or widen joints. Replace damaged masonry units as directed by Architect.
   4. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and mallet. Strictly adhere to written quality-control program. Quality-control program shall include provisions for demonstrating ability of operators to use tools without damaging masonry, supervising performance, and preventing damage due to worker fatigue.
      a. “Half moons” created by grinders in head joints will not be allowed.

5. All sealant joints at areas to be repointed are to be raked out during the mortar removal process. After repointing, these joints to be completely removed and replaced.

C. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.

D. Masonry units adjacent to the repair areas damaged during the Work shall be removed and replaced at Contractor's expense and to the acceptance of the Architect/Engineer and Owner.

E. Repoint joints as follows:
   1. Blow loose mortar out prepared joints with compressed air.
   2. Rinse masonry-joint surfaces with potable water to remove residual dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen masonry-joint surfaces before pointing.
   3. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 1/4 inch until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
   4. After deeper areas have been filled to same depth as typical areas, point all joints by placing mortar in layers not greater than 1/4 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry has worn or rounded edges, slightly recess finished mortar surface from face of masonry to avoid wider joints. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.
   5. When mortar is thumbprint hard, tool joints to match original appearance of joints. Remove excess mortar from edge of joint by brushing.

F. Cure mortar by maintaining in thoroughly damp condition for at least 72 hours including weekends and holidays.
   1. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using pipes, mist heads, and timers.
   2. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.

G. Where repointing work precedes entire building cleaning of existing masonry, allow mortar to cure at least 28 days before beginning entire overall building cleaning .

3.3 FINAL CLEANING

A. Wipe excess mortar from masonry surface adjacent to mortar joint with a damp sponge or cloth. Note: Use only sponges or cloth that is damp, not wet or saturated. When tightly squeezed water should not run from damp sponge or cloth. Surface of the masonry shall not have visible accumulation of water immediately following cleaning. Do not touch or disturb newly installed pointing mortar during cleaning. Clean until mortar and mortar haze is removed from adjacent masonry surfaces.

B. Upon completion of repointing, thoroughly rinse surfaces of walls at repointed areas to remove dust and other surface residue from repointing process. Use only low pressure (less than 100 psi) water rinse. Rinse may be eliminated only with Architect's approval.

C. After mortar has fully cured, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or fiber brushes, and clean water, spray applied at low pressure.
   1. Do not use metal scrapers or brushes.
   2. Do not use acidic or alkaline cleaners unless specified herein [or approved by A/E].

D. Wash adjacent non-masonry surfaces. Use detergent and soft brushes or cloths.

E. If mortar remains on the surface following repointing and initial clean-up the following procedure may be used if deemed necessary by the Architect:
   1. Apply cleaning agent to trial repair area to inspect its effectiveness and to determine any necessary revisions to cleaning procedures. The cleaning shall be performed in accordance with the following procedure:
      a. Do not clean masonry work with chemicals prior to 72 hours after masonry work or repointing is completed. And use specified cleaner in accordance with manufacturer's written recommendations.
      b. Pre-wet areas of wall to be cleaned prior to installation of cleaning solution and do not allow cleaning solution to dry on the masonry
      c. Remove large particles of mortar with wood paddles and scrapers before wetting the wall. Saturate the masonry with clean water and flush off all loose mortar and dirt. Scrub with a stiff fiber brush. Thoroughly wash off all cleaning solution, dirt and mortar crumbs using clean, low-pressure water. Do not damage masonry.
      d. Cleaning process shall be repeated as necessary.
      e. Thoroughly rinse wall. When wall is nearing the drying point, check pH of wall with test paper. Continue to rise wall until pH is between 6 and 8.
      f. Rinse water, pressures, and equipment shall conform standard cleaning practices.

F. Clean masonry debris from roof. Rinse off roof and flush drains. Sweep and rake adjacent pavement/grounds to remove masonry debris and pressure wash where necessary.

3.4 FIELD QUALITY CONTROL

A. Inspectors: Owner will engage qualified independent inspectors to perform inspections and prepare test reports. Allow inspectors use of facade access, as needed, to perform inspections.

B. Architect's Project Representatives: Architect will assign Project representatives to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project representatives use of scaffolding, as needed, to observe progress and qualityterr of portion of the Work completed.

C. Notify Architect's Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until Architect's Project representatives have had reasonable opportunity to make observations of work areas at lift device or scaffold location.

3.5 CLEAN UP

A. At the conclusion of repointing, remove all scaffolding and equipment used in the Work. Clean all debris, refuse and surplus of material and remove same from premises.

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: 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.

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, 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 53 23

EPDM MEMBRANE ROOFING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation, supply, and installation of adhered, EPDM membrane roofing system including insulation and cover boards.

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: 90 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 MANUFACTURERS

A. Roofing-system manufacturer that has FM Global approval for roofing system identical to that specified for Project. Use one of the following or approved equal:
   1. Carlisle SynTec Inc.
   2. Firestone Building Products Company.

2.2 EPDM ROOFING MEMBRANE

A. General:
   1. FM Global Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FM Global Class Numbers 4450 and 4470 as part of roofing system and that are listed in FM Global Approval Guide for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
   2. Roofing-system Design: Provide roofing system that is identical to systems that have been successfully tested by qualified testing agency to resist service uplift pressure calculated according to ASCE/SEI 7.
      a. Field-of-Roof Uplift Pressure: -26 pounds per square foot.
      b. Perimeter Uplift Pressure: -34 pounds per square foot.
      c. Corner Uplift Pressure: -46 pounds per square foot.

3. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing-system manufacturer based on testing and field experience.
4. Source Limitations: Obtain components for roofing system from or approved by roofing-system manufacturer.

B. EPDM Roofing Membrane: ASTM D4637/D4637M, Type I; non-reinforced, uniform, flexible sheet made from EPDM; 60 mils nominal thickness; White-on-black exposed face color.
1. Sheets shall have seam tape pre-applied at the factory.

2.3 OTHER ROOFING-SYSTEM MATERIALS

A. Temporary Roof/Vapor Retarder:
1. Roofing Manufacturer's Rubberized-Asphalt Sheets:
a. Thickness: 40 mil
b. Self-adhered
c. Primer as required by membrane manufacturer.

B. Insulation:
1. General: Provide preformed insulation boards that comply with requirements and referenced standards, selected from insulation manufacturer's standard sizes and of thicknesses indicated on Drawings.
1. Molded-Polystyrene Boards: ASTM C578 Type II, 1.35-pounds-per-cubic-foot minimum density.
a. Tapered to match existing
2. Polyisocyanurate Boards: ASTM C1289, Type II, felt or glass-fiber mat facer on both major surfaces; 20-pounds-per-square-inch-minimum compressive strength.
3. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch and 1/8 inch per 12 inches, unless otherwise indicated.
4. Insulation Accessories:
a. General: Insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
b. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
c. Tapered Edge and Cant Strips: ASTM C728, perlite insulation board.

C. Cover Board: ASTM C1289, Class 4, Grade 1 High-density polyisocyanurate.
1. Thickness: ½ inch.

D. Walkways:
1. Flexible Walkway: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, white, 30" x 30", approximately 3/16 inch thick; approved by roofing-system manufacturer. Color: White.

2.4 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing-system manufacturer for intended use and compatible with membrane roofing.
1. Liquid materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: 60-mil-thick EPDM, partially cured or cured, according to application.

C. Bonding Adhesive: Manufacturer's spray applied aerosol contact adhesive.

D. Seaming Material: Manufacturer's standard, synthetic-rubber, polymer primer and 3-inch-wide-minimum, butyl splice tape with release film

E. Lap Sealant: Manufacturer's standard single-component sealant, color to match roofing membrane.

F. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

G. Termination Bars: Roofing-system manufacturer's standard; Type-304-stainless-steel or aluminum bars, approximately 1-inch wide by 1/8-inch thick; with predrilled holes 8 inches on center.

H. Fasteners, General: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FM Global Class Number 4470, and acceptable to roofing-system manufacturer.
   1. Designed for fastening roofing-system components to substrate and tested by roofing-system manufacturer for required pullout strength.

I. Fasteners for Base Flashings:
   1. Wood and Plywood Substrates: 1-inch-minimum long, capped, galvanized-steel nails with ribbed shank of sufficient length to provide 1-inch-minimum embedment or pass through bottom side of wood or plywood. Use Square-Cap Nails-Steel Head with STORMGUARD double hot-dipped zinc coating manufactured by Maze Nails, or approved equal.
   2. 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.
   3. Metal substrate: No. 12 x 1 1/2 inch, 410 stainless steel, self-drilling screws with 1-inch, stainless steel washers.

J. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.5 BARBED TAPE

A. Wire-Reinforced Tape: ASTM F1910; continuous coil with four-point, needle-sharp barbs permanently cold clenched around a core wire.

   1. Core Wire: High-tensile-strength, zinc-coated steel.
   2. Configuration: Double coil.
   3. Style: Concertina pattern.
   4. Coil Diameter(s): 24 inches.
   5. Coil Loop Spacing(s): 12 inches.
   6. Barb Length Classification: Long, 1.2-inch.
   7. Barb Spacing: 4 inches.
   8. Barb Set: Manufacturer's standard.

B. Clips: Stainless steel, 0.065 inch thick by 0.375 inch wide; capable of withstanding a minimum 150-lbf pull load to limit extension of coil, resulting in a concertina pattern when deployed.

C. Tie Wires: Stainless steel, 0.065 inch in diameter.

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. Remove existing ballast surfacing and roofing membrane and other materials to expose existing insulation.

1. Remove only as much of existing roofing as can be prepared and new temporary roof/vapor retarder or 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. Insulation shall remain in-place.
3. Where wet materials are encountered, remove insulation to expose deck. Inspect deck for deterioration.
4. Replace existing wet insulation materials on a unit cost basis.
5. Provide temporary protection as needed if watertightness is compromised.
6. Do not begin removal of existing roofing system when weather conditions are not conducive to maintaining watertightness or for application of new construction.

B. At Area 5, remove existing roofing and other materials to expose deck substrate.
1. Remove only as much of existing roofing as can be prepared and new temporary roof/vapor retarder or 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. Provide temporary protection as needed if watertightness is compromised.
3. Do not begin removal of existing roofing system when weather conditions are not conducive to maintaining watertightness or for application of new construction.

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. Clean and prepare concrete substrate according to roofing-system manufacturer's written instructions. Provide clean, dust-free, and dry substrate.
1. Verify that substrate is sound, and visibly dry and free of moisture.
2. Verify that concrete curbs, expansion joints, and transitions from one surface plane to another (inside and outside corners) are cleanly formed and free of broken edges and excess concrete.
3. Remove concrete fins and projections, concrete splatter, and other irregularities which would prevent monolithic, continuous application of roofing.
4. Properly patch substrate defects (such as voids, form tie holes, honeycombing, and cracks) with latex-modified concrete or another material acceptable to roofing-system manufacturer and Architect/Engineer.
5. Remove grease, oil, asphalt solids, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
6. Thoroughly sweep substrate and clean with compressed air.

F. Mask adjoining surfaces not receiving roofing system to prevent spillage or migration affecting other construction.

G. 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.
1. Prior to job start-up, verify that all roof drains are performing properly by camera survey minimum 25 feet into drain piping.

H. 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.

I. Proceed with installation only after unsatisfactory conditions have been corrected. Commencing installation constitutes acceptance of Work surfaces and conditions.

3.4 ROOFING-SYSTEM INSTALLATION, GENERAL

A. Install EPDM roofing membrane and base flashings according to roofing-system manufacturer's written instructions.

B. 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.
   1. Follow safety procedures of OSHA and other applicable governing agencies. Assume responsibility for Work area safety at all times.

C. Coordinate installing roofing-system components so insulation and roofing membrane sheets are not exposed to precipitation, or left exposed at the end of the workday or when rain is forecast.
   1. Provide tie-offs at the end of each day's Work to cover exposed roofing membrane sheets and insulation.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
   3. Remove and discard temporary seals before beginning Work on adjoining roofing.

D. Cooperate with Architect/Engineer in performing inspections and testing of roofing system.

3.5 TEMPORARY ROOF/VAPOR RETARDER, INSULATION, AND COVER BOARD

A. Metal Deck Substrate: Install roof-deck board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt roof-deck boards together.

B. Concrete Substrate: Prime surface to receive roofing as required for vapor retarder installation, and allow primer to dry.

C. Vapor Retarder Installation (Area 5 Only):
   1. Install self-adhering sheets according to roofing-system manufacturer's written instructions and recommendations in ASTM D6135.
      a. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by sheet roofing in same day. Reprime areas exposed for more than 24 hours.
      b. Apply and firmly adhere sheets over area to receive roofing. Accurately align sheets and maintain uniform 2-1/2-inch-minimum lap widths and end laps. Overlap and seal seams and stagger end laps to ensure watertight installation.
         1) When ambient and substrate temperatures range between 25 and 40 degrees Fahrenheit, install self-adhering, rubberized-asphalt sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 degrees Fahrenheit.
      c. Apply sheets from low point to high point of decks to ensure that side laps shed water.
      d. Apply continuous sheets over sheet strips bridging substrate cracks, construction, and contraction joints.

e. Seal exposed edges of sheets at terminations.
f. Completely seal at terminations, obstructions, and penetrations to prevent air movement into membrane roofing system.

D. Insulation Installation:
1. Comply with roofing-system manufacturer's written instructions for installing insulation.
2. Coordinate installation so insulation is not exposed to precipitation or left exposed at the end of the workday.
3. Install tapered insulation to conform to slopes indicated.
4. Install insulation with long joints in continuous, straight line; with end joints staggered between rows; and abutting edges and ends between boards.
   a. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
   b. Fill gaps exceeding 1/4 inch with insulation.
5. Install one or more layers of insulation to achieve required thickness. Where overall insulation thickness is 2 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer at least 6 inches in each direction.
6. Trim surface of insulation where necessary at roof drains so finished surface is flush with top of drain-bowl flange and does not restrict flow of water.
7. Install and secure preformed, 45-degree insulation cant strips at junctures with vertical surfaces or angle changes greater than 45 degrees.
8. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
9. Adhered Insulation: Set each layer of insulation in a cold fluid-applied adhesive.
10. Mechanically-Fastened Insulation: Install top layer of insulation over existing and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type insulation to deck type.
    a. Fasten insulation according to requirements in FM Global Approval Guide for specified Windstorm Classification.
    b. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

E. Cover Board Installation: Install cover boards over insulation with long joints in continuous, straight lines, with end joints staggered between rows. Stagger cover-board joints from joints in insulation below, at least 6 inches in each direction. Loosely butt together and fasten to roof deck.
1. Adhered Cover Boards: Set in a cold fluid-applied adhesive.
   a. Adhere insulation to resist uplift pressure at corners, perimeter, and field of roof.

3.6 ROOFING MEMBRANE INSTALLATION

A. Start installation of roofing membrane in presence of roofing-system manufacturer's technical personnel.

B. Unroll roofing membrane and allow to relax before installing.

C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by roofing-system manufacturer.
1. Stagger end laps.
2. Shingle side laps with slope of roof deck where possible.

D. Bonding Adhesive: Apply spray adhesive to substrate and underside of roofing membrane at rate required by roofing-system manufacturer and allow to partially dry before installing roofing membrane. Do not apply spray adhesive to splice area of roofing membrane.

E. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.

F. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membrane sheets according to roofing-system manufacturer's written instructions, to ensure a watertight seam installation. Install membrane patch at T-joints.

G. Joint Cover Installation: Clean and prime area at field and flashing seams to receive joint covers. Apply joint cover and firmly roll into place in accordance with roofing-system manufacturer's written instructions. Install membrane patch at T-joints.

H. Adhesive Seam Installation: Not permitted without prior authorization.

I. Repair tears, voids, and lapped seams that are not completely sealed.

J. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

K. Through-Membrane Attachment: Mechanically fasten roofing membrane to roof deck using fastening plates. Cover plates and fasteners with continuous cover strip.

3.7 BASE FLASHING INSTALLATION

A. Base Flashing: Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and adhere to substrates according to roofing-system manufacturer's written instructions.
   1. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
   2. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
   3. Terminate and seal upper edge of sheet flashings, and mechanically anchor to substrate with termination bars with fasteners spaced 8 inches on center and within 2 inches of end termination in base flashing.
   4. Install sheet metal flashing or counterflashing at top termination of base flashing, per Section 07 62 00.

B. Roof Drains:
   1. Install roofing membrane. Trim to extend 1/2 inch beyond inside edge of drain-bowl flange.
   2. Install water cutoff sealant on drain-bowl flange, below roofing membrane.
   3. Install clamping ring and drain strainer.
      a. Install clamping ring. Securely fasten clamping ring to provide continuous compression of roofing membrane.
      b. Install strainer dome.
   4. At the end of the Project, test drains for watertightness and ensure that drains flow freely.

3.8 WALKWAY INSTALLATION

A. Install walkways on roof membrane at doors; on three sides of hatches; below equipment and supports; at base and top of roof access ladders; at base of HVAC access ladders; below

prefabricated, service-line supports; below duct supports, service lines, and condensate lines; and at other locations indicated.

B. Use only full-size units, except partial units at corners if necessary to provide neat, finished appearance.

C. Provide 2 inches minimum between adjacent units. Extend walkway 6 inches minimum beyond edges of equipment or supports.

D. Sweep loose surfacing material from walkway locations.

E. Flexible Walkway: Adhere pads to substrate with two-sided tape, in accordance with recommendations of walkway and roofing-system manufacturers.

3.9 BARBED TAPE INSTALLATION

A. Barbed Tape: Install in accordance with ASTM F1911. Install barbed tape uniformly in configurations indicated in the drawings and fasten securely to prevent movement or displacement.

B. Place barbed tape on concrete pavers and secure with stainless steel “U” straps spaced 4’-0” O.C.

3.10 FIELD QUALITY CONTROL

A. Architect/Engineer will inspect roofing system at various stages of construction and at completion.

B. Final Roof Inspection: Arrange for roofing-system manufacturer’s technical representative to inspect roofing installation on completion and submit report to Architect/Engineer. Notify Architect/Engineer and Owner’s Representative 48 hours in advance of date and time of inspection.

C. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, and describe nature and extent of deterioration and damage in written report, with copies to Architect/Engineer and Owner’s Representative.

D. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

E. Additional testing and inspecting, at Contractor’s expense, will be performed to determine compliance of replaced or additional Work with specified requirements.

3.11 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 roofing 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.

C. Waste Management:
   1. Collect surplus roofing 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.

3.12 PROTECTION

A. Protect roofing system from damage and wear during remainder of construction period.

END OF SECTION

ROOFING INSTALLER'S WARRANTY

WHEREAS **<Insert name>** of **<Insert address>**, herein called ***Roofing Installer***, has performed roofing and associated work, designated ***Work***, on the following project:

Owner: **<Insert name of Owner.>**
Address: **<Insert address.>**
Building Name/Type: **<Insert information.>**
Address: **<Insert address.>**
Area of Work: **<Insert information.>**
Acceptance Date: **<Insert date.>**
Warranty Period: Two years.
Expiration Date: **<Insert date.>**

AND WHEREAS Roofing Installer has contracted, either directly with Owner or indirectly as subcontractor, to warrant said Work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period it will, at its own cost and expense, make or cause to be made such repairs to or replacement of said Work as are necessary to correct faulty and defective Work and as are necessary to maintain said Work in watertight condition, and warrants against the following.

1. 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, regardless of whether the Work was previously accepted by Owner.
2. Damage by exposure to foreseeable weather; damage from leaks in roof system or related components; and damage by intrusion of foreseeable wind-borne moisture. Damage is understood to include accumulation of subsurface roof system moisture (i.e. wet insulation board), even if no other visible interior damage or moisture exists.

Warranty is made subject to the following terms and conditions:

1. Specifically excluded from 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 **90** miles per hour;
   c. fire;
   d. failure of roof structure;
   e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of Work;
   f. activity on roofing by others, including construction contractors and maintenance personnel, whether authorized or unauthorized by Owner's Representative.
2. When Work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to Work covered by 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 Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, Warranty shall become null and void on date

of said alterations, but only to extent said alterations affect Work covered by Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate Work, thereby reasonably justifying limitation or termination of Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, Warranty shall become null and void on date of said change, but only to extent said change affects Work covered by Warranty.
6. Owner will promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and will afford reasonable opportunity for Roofing Installer to inspect Work and to examine evidence of such leaks, defects, or deterioration. Roofing Installer shall inspect leak, defect, or deterioration within 24 hours of notification.
7. If permanent repair or replacement of warranted condition cannot be made immediately, due to weather conditions, availability of appropriate labor or materials, building occupancy, etc., Roofing Installer must make, or cause to be made, immediate temporary repairs to prevent any further damage, deterioration, or unsafe conditions. Permanent repair or replacement of warranted condition shall be scheduled as soon thereafter as practical, and with Owner's consent and approval.
8. If Owner notifies Roofing Installer of warranted condition that requires immediate attention to prevent potential injury or damage, and Roofing Installer cannot or does not promptly inspect and repair same, either permanently or temporarily, then Owner may make, or cause to be made, such temporary repairs as may be essential and Roofing Installer will reimburse Owner for cost of such repairs. Such action will not relieve Roofing Installer of its obligation to perform any necessary permanent repairs, and Warranty shall remain in full force and effect for remaining portion of its original term.
9. Roofing Installer shall provide equipment, labor, and material required to remedy warranted conditions, including repair or replacement of damage to other work resulting therefrom, and removal and replacement of other work required to access warranted condition. Additional required work will be at Roofing Installer’s sole expense for full term of Warranty. Warranty includes removal and replacement of roof-deck boards, base sheets, temporary roof/vapor retarder, insulation, cover boards, walkway products, and work that conceals defect, for all components of roofing system.
10. Roofing Installer shall perform a thorough inspection of roof system and other Work, within 30 day period preceding first and second anniversaries of start of Warranty period, in presence of roofing-system manufacturer's representative and Owner's Representative. Roofing Installer shall make, or cause to be made, necessary repairs or replacement to remedy conditions noted during inspections, under the terms of this Warranty. Repairs to be made within 30 days of inspection date or as otherwise agreed by Owner, even if such time extends beyond Warranty period.
11. Warranty is recognized to be only Warranty of Roofing Installer on said Work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original Work according to requirements of Contract Documents, regardless of whether Contract was directly with Owner or with Owner’s General Contractor.

IN WITNESS THEREOF, and intending to be legally bound hereby, Roofing Installer has caused this document to be executed by undersigned, duly-authorized officer.

_____ Corporate Seal:
(Roofing Installer)

By: _____

(Signature)

_____
(Name)

_____
(Date)

Subscribed and sworn to before me this ____day of _____, 20__

_____
Notary Public
My commission expires _____

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 04 22 00 – Concrete Masonry Units
   2. Section 07 53 23 – EPDM Membrane Roofing
   3. Section 07 92 00 – Joint Sealants
   4. Section 09 97 13 – Coatings for Steel

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. Samples: For each type of sheet-metal flashing and trim. Construct typical lap splice or seam for mechanically-jointed systems, and solder lap or seam for field-solderable systems.

D. 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.

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.

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; base counterflashings; roof-penetration 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. 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 counterflashings in existing copper receivers:
   1. Copper Sheet: ASTM B370; ASTM B601, Temper H00 or H01, cold-rolled; 16 ounces per square foot.

C. For through-wall flashings:
   1. Stainless steel: Stainless steel sheet, ASTM A167, Type 304; No. 2D mill rolled finish; 26 gauge. Flashing is to include hemmed drip edge.

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. Self-Adhering Flashing Membrane (all primers and lap sealant to be recommended by membrane manufacturer):
   1. Perm-a-Barrier, manufactured by GCP Applied Technologies.
   2. Or approved equal.

C. 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.
      a. Use stainless-steel fasteners, except that aluminum fasteners may be used with aluminum sheet metal, and copper or hardware bronze fasteners may be used with copper sheet metal.
      b. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
         1) Blind Fasteners: High-strength aluminum or stainless-steel rivets.
   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.
   6. Rope Weep Cords: Rope weeps cut to length, 100 percent cotton rope.
   7. Cell Vents: 4 in. tall by depth of masonry by 3/8 in. wide polypropylene cell vents tested in conformance with ASTM D2240, D790B, D638 and D1238B. Color to match mortar.

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, drip edge, and Fascia Caps: 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: Insert counterflashing in reglets or receivers 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 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation and installation of sealant in joints.

B. Related Sections:
1. Section 04 22 00 – Concrete Unit Masonry
2. Section 04 91 60 – Repointing with Cement-Lime Mortar
3. Section 07 62 00 – Sheet Metal Flashing and Trim
4. Section 09 96 53 – Elastomeric Coatings
5. Section 09 97 00 – Coatings for Steel

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date
1. ASTM International
   a. C920 - Standard Specification for Elastomeric Joint Sealants
   b. C1193 - Standard Guide for Use of Sealants
   c. C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants
   d. C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints

1.3 SUBMITTALS

A. Product Data: Sealant manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and installation instructions.
1. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations.
2. SpecData sheet for substrate cleaner and substrate primer recommended by sealant manufacturer for specific substrate surface and conditions.

B. Samples:
1. Sealant manufacturer's color sample card, either printed or with thin sealant beads, showing range of colors available for each product exposed to view.

C. Manufacturer's Reports and Certifications.
1. Prior to sealant installation, submit report from sealant manufacturer with results of sealant compatibility, sealant and substrate staining, and mock-up adhesion tests.
   a. Report shall state that materials which come into contact with or in close proximity to sealant have been tested.
   b. Report shall include sealant manufacturer's interpretation of test results relative to material performance, potential staining of sealant and substrates, dirt accumulation of sealant, and dirt runoff from sealant.

c. Report shall include sealant manufacturer's recommendations for substrate preparation and primer needed to obtain durable adhesion and installation procedures successfully used in mockups and field tests.
d. Product Certificates: For each sealant product, accessory, related products, joint type, and substrate, provide sealant manufacturers' written approval of their products' use for specified conditions; based on mockups and field tests.

D. Sample Warranty: Copy of sealant manufacturer's warranty, stating obligations, remedies, limitations, and exclusions. Submitted with bid.

E. Following completion of Work, submit sealant manufacturer's inspection report of completed sealant installation and completed warranty; submit completed Installer warranty.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Must have installations of specified materials in local area in use for minimum of five years.
1. Employ foreman with minimum of 5-years experience as foreman on similar projects, to be on site at all times during Work.

B. Mockups: Install 5 feet of sealant in each type of joint to verify and set quality standards for materials and installation procedures, and to demonstrate aesthetic effects and ability to match existing conditions.
1. Include each type of backing material, sealant, primer and other related products.
2. Mockups shall be accessible or located as indicated by Owner's Representative.
3. Notify Owner's Representative and Architect/Engineer seven days in advance of date when mockups will be constructed.
4. Field-Adhesion Testing: After sealants have cured, perform field-adhesion tests according to ASTM C1521.
a. Conduct tests for each type of sealant and joint substrate, with and without primer.
b. Arrange for tests to take place with sealant manufacturer's technical representative present.
c. Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Use alternate materials or modify installation procedure, or both, for sealants that fail to adhere to substrates.
5. If Architect/Engineer determines mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved.
6. Mock-ups, when approved by Owner's Representative and Architect/Engineer, will become standard for Work.
7. Approved mockups may become part of completed Work if undisturbed at time of Substantial Completion.
8. Do not begin joint sealant Work until mock-up is accepted by Owner's Representative and Architect/Engineer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original packages with seals unbroken, labeled with sealant manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.

B. 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.

C. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by sealant manufacturer. Protect stored materials from direct sunlight. Sealant manufacturer's standard packaging and covering is ***not*** considered adequate weather protection.

D. Limit stored materials on structures to safe loading of structure.

E. Handle materials to avoid damage.

F. Conspicuously mark wet or damaged materials and remove from site as soon as possible.

G. Remove and replace materials that cannot be applied within stated shelf life.

1.6 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to installation of materials. Notify Architect/Engineer of conditions found to be different than those indicated in 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 sealant when existing and forecast weather conditions permit sealant to be installed according to sealant manufacturer's written instructions and warranty requirements.
   1. Do not install sealant when ambient or substrate temperatures are below 40 degrees F or are expected to fall below 40 degrees F in the next 12 hours.
   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.

1.7 WARRANTY

A. Manufacturer's Warranty:
   1. Warranty Period: 20 years from date of Substantial Completion.

B. Sealant Installer's Warranty:
   1. Completed warranty form at end of Section, signed by Installer.
      a. Repair or replace sealant that does not comply with requirements; that does not remain watertight; that fails in adhesion, cohesion, or general durability; or that deteriorates in manner not clearly specified by submitted sealant manufacturer's data as inherent quality of material for application indicated.
      b. Removal and replacement with new bond breaker materials.
      c. Labor and materials to perform warranty work.
      d. Warranty does not include sealant deterioration or failure due to following.
         1) Excessive joint movement caused by structural settlement or errors attributable to design or construction, resulting in stresses in sealant exceeding sealant manufacturer's written specifications for sealant elongation or compression.

2) Deterioration or failure of sealant due to failure of substrate prepared according to requirements.
3) Mechanical damage caused by individuals, tools, or other outside agents.
4) Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

2. Warranty Period: 2 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 ELASTOMERIC JOINT SEALANTS

A. General:
1. Comply with ASTM C920 and other requirements indicated.
2. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing on similar projects, mockups and preconstruction testing for this project, and field experience.
3. Select products based on mockups, preconstruction testing, and sealant manufacturer's previous testing and experience.
4. Source Limitations: Obtain each type of joint sealant through one source from single manufacturer, and from same manufacturer as silicone elastomeric coating to be used on the project (see 09 96 53 – Elastomeric Coating).
5. Colors of Exposed Joint Sealants: Selected and approved in writing by Owner's Representative, from sealant manufacturer's full range to match existing colors.

B. One part Silicone, Non-staining & Non-bleeding, Nonsag (± 50% movement). Color to be selected by Owner.
1. DOWSIL 756 SMS by Dow.
2. SCS9000 SilPruf NB by Momentive Performance Materials (GE).
3. Approved equal.

C. Non-skinning high temperature butyl sealant. - Metal to metal lap splices and at anchor locations through roof underlayment.
1. Approved manufacturers
a. Tremco (Basis of design: TREMPRO JS-773)
b. PTI
c. Approved equal

2.2 AUXILIARY MATERIALS

A. General: Joint filler, bond breaker, primers, surface cleaners, masking tape, and other materials recommended by sealant manufacturer, that are non-staining and compatible with substrates; based on mockups, preconstruction testing, and sealant manufacturer's previous testing and experience.

B. Closed Cell Non-Gassing Backer Rod with configurations shown on Drawings. Size backer rod appropriately per manufacturer recommendations.
1. Bi-celluar Backer-Rod by Nomaco.
2. Approved Equal

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer and sealant manufacturer's representative for compliance with requirements and for other conditions affecting sealant performance.
   1. Verify dimensions of sealant joints at the project site by field measurement so that all proper sealant profiles will be accurately maintained.
   2. Notify Architect/Engineer in writing of conditions which may adversely affect sealant installation or performance, including joints with widths less than those allowed by sealant manufacturer for applications indicated. Do not proceed with sealant installation until these conditions have been corrected and reviewed by Architect/Engineer.
   3. Installation of sealant system indicates acceptance of surfaces and conditions.

3.2 COORDINATION

A. Coordinate Work to ensure that new materials and building interior are kept continuously dry and that continuous, watertight, new sealant installation is provided. Coordinate:
   1. With Owner's Representative.
   2. With other trades to avoid or minimize work on, or in immediate vicinity of, installation in progress and completed sealant work.
   3. To avoid or minimize adverse effects on completed sealant work.

3.3 SURFACE PREPARATION

A. Remove existing sealant and other foreign material from joints.

B. Repair damaged or deteriorated substrate surfaces according to sealant manufacturer's written instructions and as approved by Architect/Engineer.

C. Clean joint substrates immediately before installing sealant, to comply with sealant manufacturer's written instructions based on mockups and preconstruction testing.
   1. Remove from substrate foreign material that could interfere with adhesion of sealant, including dirt, dust, existing sealant, oil, grease, and surface coatings.
   2. Provide dry substrate; prevent wetting of substrate prior to sealant installation.
   3. Clean porous substrates, such as concrete, masonry, stone, wood, by brushing, grinding, blast-cleaning, mechanical-abrading, or combination of methods to produce clean, sound substrate capable of developing optimum bond with sealant. Remove laitance and form-release agents from concrete. Remove loose particles remaining after cleaning operations by vacuuming or blowing out joints with oil-free, compressed air.
   4. Clean nonporous surfaces, such as metal, with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of sealant.
   5. Joints with silicone sealant should generally be masked as subsequent cleanup of spillage and smears may be very difficult.

D. Install masking tape on adjacent surfaces to prevent permanent staining or damage due to contact with sealant or cleaning methods to remove sealant smears. Remove tape immediately after tooling sealant, without disturbing sealant.

3.4 INSTALLATION OF JOINT SEALANT

A. General: Comply with sealant manufacturer's written installation instructions for products and applications indicated, based on mockups and preconstruction testing.

B. Joint Priming: Prime joint substrates where recommended in writing by sealant manufacturer, based on mockups and preconstruction testing. Apply primer to comply with sealant manufacturer's written instructions.
   1. Confine primer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.
   2. Limit priming to areas that will be covered with sealant in same day. Unless recommended otherwise by sealant manufacturer, reprime areas exposed for more than 24 hours.

C. Install sealant backer and position to produce cross-sectional shape and proper depth of installed sealant.
   1. Use properly-sized backer. Do not use multiple-backer units or braided-backer units to accommodate wide joints.
   2. Install backer with device that will provide consistent depth between substrate surface and outer surface of backer.
   3. Do not leave gaps between ends of sealant backers.
   4. Do not stretch, twist, puncture, or tear sealant backers.
   5. Remove wet backers and replace with dry materials.

D. Install bond-breaker tape at back of designated joints.

E. Install sealant immediately after installing backer material; to produce uniform, cross-sectional shape and depth; to directly contact and fully wet joint sides and backer material; and to completely fill recesses in joint configuration.
   1. Install sealant flush with surface.
   2. Immediately after sealant application and before skinning or curing begins, tool joint with slightly concave surface, compressing sealant into joint to form smooth, uniform sealant bead; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Do not use tooling agent.

3.5 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Manufacturer's representative will perform non-destructive and destructive field adhesion tests on sealant in accordance with ASTM C1521.
   1. Destructive testing:
      a. Cut 6-inch-long tail of sealant loose from substrate.
      b. Mark tail 1 inch from adhesive bond.
      c. Grasp tail 1 inch from adhesive bond and pull until tail extends to two times published movement capability of sealant. If sealant has not failed, continue pulling to failure.
      d. Record elongation at failure and if failure was adhesive or cohesive.
      e. Observe sealant for complete filling of joint with absence of voids, and for joint configuration in compliance with requirements. Record observations and sealant dimensions
   2. Test reports shall include date when sealant was installed, name of person who installed sealant, test date, test location, and whether primer was used.

3. Immediately after testing, Contractor shall replace failed sealant in test areas. Neatly cut out and remove failed sealant, prepare and prime surfaces, and install new sealant. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
4. Sealant not evidencing adhesive failure from testing or noncompliance with requirements will be considered satisfactory.
5. The Architect/Engineer reserves the right to perform adhesion testing at up to twenty locations during Phase I and twenty additional locations in Phase II on the building as the work progresses. The number of test areas will be increased if the installed sealant fails to pass the test.
6. Where Architect/Engineer determines that sealant has failed adhesively from testing or does not comply with requirements, additional testing will be performed to determine extent of non-conforming sealant. Neatly cut out and remove non-conforming sealant, prepare and prime surfaces, and install new sealant. Perform field adhesion tests on new sealant. Additional testing and replacement of non-conforming sealant shall be at Contractor's expense.

3.6 CLEANING AND PROTECTION

A. Clean off excess sealant or sealant smears as Work progresses by methods and with cleaning materials approved in writing by sealant manufacturers and manufacturers of products in which joints occur.

B. Protect sealant during and after curing period from contact with contaminating substances and from damage, so sealants are without deterioration or damage at time of Substantial Completion. If damage or deterioration occurs, neatly cut out and remove damaged or deteriorated sealant, prepare and prime surfaces, and install new sealant. Replace sealant immediately so new sealant is indistinguishable from original Work.

END OF SECTION

SECTION 09 96 53

ELASTOMERIC COATING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation and application of elastomeric coating on exterior concrete masonry wall surfaces.

B. Related Sections:
   1. Section 04 22 00 - Concrete Unit Masonry
   2. Section 07 92 00 - Joint Sealants

1.2 REFERENCES

A. Definitions:
   1. General: Standard coating terms defined in ASTM D16.
   2. Elastomeric coating: Coating that "exhibits the ability to stretch, and then recover its original shape as a dry film." (MPI Manual)
   3. Stucco: Portland-cement-based plaster used on exterior surfaces.

B. Reference Standards: Latest edition as of Specification date.
   1. ASTM International:
      a. D16: Standard Terminology for Paint, Related Coatings, Materials, and Applications.
      b. D3359: Standard Test Methods for Measuring Adhesion by Tape Test.
      c. D4541: Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
   2. Master Painters Institute (MPI):
      a. Architectural Painting Specification Manual (MPI Manual).

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 coating Work.
      b. To avoid or minimize work on, or in immediate vicinity of, coating Work in progress.
      c. To ensure that subsequent work will not adversely affect quality of completed coating Work.

B. Review repair and surface treatment materials and primers specified in other sections to ensure compatibility with elastomeric coatings to be used. Notify Architect/Engineer in writing of concerns with materials or primers installed by others and recommend remedies.

C. Schedule surface preparation and coating application Work so that dust and other contaminants from surface preparation Work will not adversely affect wet, newly-coated surfaces.

1.4 SUBMITTALS

A. Product Data: For each coating, manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; mixing and application instructions; safety precautions for handling, storing, applying, and disposing of materials; and instructions for protecting surrounding areas from overspray. Include:
   1. Surfaces to which materials will be applied.
   2. Materials List: Inclusive list of required materials for each coating system, including crack fillers, block fillers, and primers. Cross-reference coating system and application. Identify each material by manufacturer's catalog number and general classification.
   3. VOC content of components.
   4. Certification by coating manufacturer that products supplied comply with local VOC regulations.
   5. Coating manufacturer's color chart showing full range of colors available.
   6. Include material Safety Data Sheets for information only.

B. Samples: 8-inch-square samples, on representative samples of actual substrates, of each coating system and color to be applied, with texture to simulate actual conditions. For review of color and texture only.
   1. Provide stepped samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required color, sheen, and texture are achieved.
   2. Label each sample for location and application.
   3. Provide list of materials and applications for each coat of each sample.
   4. Provide mortar joint in center of concrete masonry samples.

C. Safety Plan: Written action plan that complies with applicable government regulations and covers operational requirements for safe application of coating materials; means of protection of surrounding areas from overspray and rebound; and handling, storage, and disposal of hazardous and toxic materials.

D. Applicator Qualifications: Evidence that Applicator's *existing company* has minimum five years of continuous experience in similar coating 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. Elastomeric coating used.
   6. Project supervisor.
   7. Total cost of coating work and total cost of project.
   8. Completion date.

E. Sample Warranties: Copies of coating manufacturer's warranty and Contractor's warranty, both stating obligations, remedies, limitations, and exclusions. Submitted with bid.

1.5 EXTRA MATERIALS

A. Furnish and deliver to Owner one gallon of each color and finish of elastomeric coating material applied. Provide materials in unopened, factory-sealed containers for storage and identify with labels describing contents.

1.6 QUALITY ASSURANCE

A. Applicator Qualifications: Experienced firm that has successfully completed coating work with similar materials, design, and extent to that indicated for Project. Must have successful applications 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 Applicator; inform Architect/Engineer in advance of any changes.

B. Mockups: Prepare surface and apply elastomeric coating at location shown on Drawings to demonstrate surface preparation, crack and joint treatment, aesthetic affects, and quality of materials and execution. Leave portion of prepared surface and each coating layer exposed to view. Provide required color, sheen, and texture on each surface.
   1. Coating manufacturer's representative shall observe mockup and approve in writing surface preparation and coating application.
   2. Coating manufacturer's representative shall verify coating thickness and perform adhesion and pull-off tests. Contractor shall, at no cost to Owner, repair coating and substrate damaged by testing.
   3. If Architect/Engineer determines mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved. Pay for additional testing requested by Owner. Do not proceed with Work until mockup is approved.
   4. Approved mockup will be acceptance standard for coating Work.
   5. Approved mockup may become part of completed Work if undisturbed at time of Substantial Completion.

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:
   1. Manufacturer's name.
   2. Product brand name and type
   3. Contents by volume for pigment and vehicle constituents.
   4. VOC content.
   5. Color name and number.
   6. Date of manufacture and batch number.
   7. Directions for storing, handling, mixing with other components, and application, including precautions.
   8. Thinning instructions (if permitted).

C. Store materials in original, undamaged containers and, if permitted, partially used materials in tightly covered containers in clean, dry, well-ventilated, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Protect stored materials from direct sunlight, heat, sparks, and flames.

D. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

E. Conspicuously mark damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.

F. Remove and replace materials that cannot be applied within stated shelf life.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Apply coating when existing and forecast weather conditions permit coating to be applied according to coating manufacturer's written instructions and warranty requirements.
   1. Apply only when substrate and ambient temperatures are between 50 and 90 degrees F, or within range recommended by coating manufacturer. Maintain minimum substrate and ambient temperatures for at least 24 hours before and after coating application.
   2. Do not apply in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above dew point; or when such conditions are imminent during the drying period.
   3. Do not apply to damp or wet substrate.
   4. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before starting or continuing coating operation.

B. Handle and apply materials in strict accordance with safety requirements required by coating 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.

C. Maintain adequate ventilation during preparation and application of coating materials.

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 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.

1.10 WARRANTY

1. Written warranty, signed by coating manufacturer, including:
   a. Materials to replace coating that does not comply with requirements; that fails in adhesion, cohesion, or general durability; that cracks, checks, fades, or chalks; or that deteriorates in a manner not clearly specified by submitted coating manufacturer's data as an inherent quality of the material for the application indicated.
   b. New coating shall closely match color of existing coating. Extend new coating to reveals, surface edges, or other natural termination points to minimize differences in appearance between new and existing coating.
   c. Warranty does not include debonding of existing coatings from substrate or from each other.
2. Warranty Period: Ten years after Substantial Completion date.

B. Contractor's Warranty:
   1. Written warranty, signed by Contractor, including:
      a. Repair or remove and replace coating that does not comply with requirements; that fails in adhesion, cohesion, or general durability; that cracks, checks, fades or chalks; or that deteriorates in a manner not clearly specified by submitted coating manufacturer's data as an inherent quality of the material for the application indicated.

2. New coating shall closely match color of existing coating. Extend new coating to reveals, surface edges, or other natural termination points to minimize differences in appearance between new and existing coating.
3. Warranty includes:
   a. Providing access to warranty Work.
   b. Necessary surface preparation work.
4. Warranty does not include debonding of existing coatings from substrate or from each other.
5. Warranty Period: Five years after Substantial Completion date.

PART 2 PRODUCTS

2.1 ELASTOMERIC COATING MATERIALS, GENERAL

A. Source Limitations: Obtain materials through one source from single coating manufacturer, or from sources approved by coating manufacturer, and from same manufacturer as silicone joint sealant to be used on the project (see 07 92 00 – Joint Sealants).

B. Material Compatibility: Provide crack fillers, block fillers, primers, elastomeric coatings, and related materials that are compatible with one another and substrates indicated under conditions of application and service, as demonstrated by manufacturer based on testing and field experience.

C. Material Quality: Provide manufacturer's best-quality elastomeric coating materials that are factory formulated and are recommended by manufacturer for application indicated. Material containers not displaying manufacturer's product identification are not acceptable.

2.2 ELASTOMERIC COATING

A. Elastomeric Coating: Factory-formulated; internally plasticized, 100-percent silicone.

B. Silicone Coating: Use one of the following or approved equal.
   1. AllGuard Silicone Elastomeric Coating manufactured by Dow Corning Corp.
   2. SilShield 3100 Silicone Elastomeric Coating by GE
   3. Optic Translucent Silicone Coating by GE

C. Tinting: For multi-coat applications, tint material in each coat slightly lighter shade than material in succeeding coat, to facilitate determining full coverage of each coat.

2.3 AUXILIARY MATERIALS

A. Use block fillers, crack fillers and sealants, detail materials, and primers recommended by coating manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Applicator and coating manufacturer's representative for compliance with requirements and other conditions affecting application or performance of coating.

1. Ensure that work done by other trades is complete and ready for coating Work.
2. Verify that areas and conditions under which coating Work is to be performed permit proper and timely completion of Work.
3. Verify compatibility with and suitability of substrates, including existing coatings.
4. Verify adhesion of existing coatings.
5. Notify Architect/Engineer in writing of conditions which may adversely affect application or performance of coating and recommend corrections.
6. Do not proceed with coating Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
7. Commencing coating 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. Provide “Wet Paint” signs to protect newly coated surfaces.

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. Take precautions against air-borne materials and runoff.

G. Masking and Preparation:
   1. Remove hardware, light fixtures, and other items that will not be coated. If removal is impractical because of size or weight of item, protect item during surface preparation and coating application. After completing coating Work, reinstall items removed, using workers skilled in trades involved.
   2. Comply with coating manufacturer’s written instructions for protecting building and other surfaces against damage from exposure to its products.
   3. Cover adjacent surfaces with materials that are proven to resist coating system.
   4. Mask off or protect from spatter, overspray, or other damage surfaces not scheduled to receive coating.
   5. Remove masking and other protective measures at completion of coating 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. Existing Coating:
   1. Remove unbonded or deteriorated coating.
   2. Feather edges by sanding, grinding, or as recommended by coating manufacturer.

B. Substrate: Clean and prepare substrate according to coating manufacturer's written instructions. Provide clean, dust-free, dry, and sound substrate for coating application.
   1. Verify that substrate has cured and aged for minimum time period recommended by coating manufacturer.
   2. Remove fins and projections, splatter, and other irregularities which would prevent monolithic, continuous application of coating.
   3. Properly patch substrate defects, such as voids, form tie holes, honeycombing, and cracks, with latex-modified concrete or another material acceptable to coating manufacturer and Architect/Engineer.
   4. Remove grease, oil, asphalt solids, form-release agents, curing compounds, and other contaminants or film-forming coatings that might impair bond of elastomeric coating. If chemical removal is necessary, rinse with clean water.
   5. Pressure wash concrete masonry to provide clean surface, free of laitance, dirt, and other loose or foreign material, and to slightly roughen surface.
   6. Treat cracks, joints, changes in surface direction, and through-member penetrations with patching compound or sealant as recommended by coating manufacturer. Remove deteriorated existing sealant and other materials and replace with materials recommended by coating manufacturer.
   7. Fill pores, crevices, and voids in concrete masonry with block filler and allow filler to dry.

C. Applicator and coating manufacturer's representative shall examine substrate to ensure that it is properly prepared and ready to receive coating.
   1. Coating manufacturer's representative shall report in writing to Applicator and Architect/Engineer conditions which may adversely affect coating system application or performance and recommend corrections.
   2. Do not proceed with coating application until unsatisfactory conditions have been corrected and reviewed by Architect/Engineer.
   3. Commencing coating application constitutes acceptance of Work surfaces and conditions.

3.4 APPLICATION

A. General: Prepare and apply materials according to coating manufacturer's written instructions, at recommended rates and coverages.
   1. Test prepared surfaces for alkalinity, moisture, and other conditions as recommended by coating manufacturer.

B. Mix materials thoroughly to uniform, smooth consistency. Do not thin or dilute unless permitted by coating manufacturer; use recommended thinners within recommended limits.
   1. Stir as required during application.
   2. If surface film forms, do not stir film into material. Remove film and strain coating material before using.
   3. Maintain containers used for mixing and applying coating in clean condition, free of foreign materials and residue.

C. Apply coating by roller, spray, or brush. Use applicator and technique best suited for substrate and type of material being applied.
   1. Apply materials as soon as practicable after completion of surface preparation or full curing of previous material application.
   2. Do not coat over conditions detrimental to formation of durable coating film, such as dirt, rust, scale, grease, or moist or scuffed surfaces.
   3. Apply barrier coat over incompatible primers or remove and re-prime.

4. Prime surfaces as necessary.
5. Apply elastomeric coating in two or three coats to provide overall thickness of 10 to 15 dry mils (0.010 to 0.015 inches) or as recommended by coating manufacturer, whichever is greater. Do not apply subsequent coat until previous coat has fully cured. Select application method to avoid excessive coating thickness.
    a. If undercoats or other conditions show through final coat, apply additional coats until coating film is of uniform finish, color, and appearance, if approved by Architect/Engineer.
    b. Ensure that edges, corners, and crevices receive minimum dry film thickness.
    c. Brush Application: Work material into surface in even film. Eliminate cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Neatly draw lines at edges and color breaks.
    d. Roller Application: Keep cover wet; do not dry roll. Apply material in sections. Lay on required amount of material, working material into grooves and rough areas. Then level material, working it into surface.
    e. Spray Application: Use spray application only when permitted by manufacturer's written instructions and authorities having jurisdiction. Apply material to provide equivalent hiding of brush-applied coat. Do not double back, building up film thickness of two coats in one application.
6. Do not coat over UL, FMG, or other labels.

3.5 FIELD QUALITY CONTROL

A. Material Coverage Rates.
    1. At beginning of application, calibrate material coverage rate with wet-mil thickness equivalent to minimum specified dry-mil thickness. Measure wet-mil thickness with thickness gauge.
    2. Measure wet-mil thickness at least once for every 200 square feet of surface coated. Adjust coverage rate to maintain minimum thickness.

B. Quality Control Adhesion Testing to be performed by silicone coating manufacturer using the cheesecloth method (embedding a cheesecloth strip in the wet coating and, after it cures, pulling at a slow, steady rate).

C. Owner may, at its expense, perform the following tests. Contractor shall provide access to test locations determined by Architect/Engineer.
    1. Measure dry-film thickness of coating. Coating thickness is acceptable if within specified range.
    2. Perform adhesion tests per ASTM D3359, Test Method A, after coating has cured. Coating adhesion is acceptable if no peeling or coating removal occurs (Rating 5A).
    3. Perform pull-off tests per ASTM D4541, after coating has cured. Coating application is acceptable if test results are at least 100 pounds per square inch.
    4. If coating application is acceptable, Owner will pay Contractor to repair substrate and coating as necessary at test locations.
    5. If coating application is unacceptable, Architect/Engineer will determine remedy. Contractor shall remove and replace unacceptable coating or perform other remedial actions at no cost to Owner. Contractor shall also repair substrate and coating at test locations with unacceptable results at no cost to Owner. Contractor may, at own expense, perform additional measurements and testing to determine limits of areas with unacceptable coating.

D. Completed Work shall match approved mockup for color, texture, and coverage, in opinion of Architect/Engineer, and shall be free from flow-lines, streaks, blisters, and other surface imperfections. Remove, refinish, or recoat Work not complying with specified requirements.

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 coating 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 surfaces stained, marred, or otherwise damaged during coating Work.
   3. Clean up debris and surplus materials and remove from Site.

C. Waste Management:
   1. Collect surplus coating 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

SECTION 09 97 13

COATINGS FOR STEEL

PART 1 GENERAL

1.1 WORK INCLUDED

A. Furnish all labor, materials, tools and equipment and perform all Work necessary for and incidental to painting as shown on the Drawings and specified herein. This includes but is not limited to the following:

1. Cleaning, priming, and painting embedded steel structural members revealed by selective demolition of masonry.
2. Cleaning, priming, and painting exposed steel window frame members at selected window locations.

1.2 RELATED WORK SPECIFIED ELSEWHERE

1. Section 04 22 00 – Concrete Unit Masonry
2. Section 07 62 00 – Sheet Metal Flashing and Trim
3. Section 07 92 00 – Joint Sealants

1.3 REFERENCES

1. ASTM International (ASTM)
2. ASTM D1186 - "Standard Method for Nondestructive Measurement of Dry Film Thickness (DFT) of Nonmagnetic Coatings Applied to a Ferrous Base"
3. ASTM D1212 - "Standard Test Methods for Measurement of Wet Film Thickness of Organic Coatings
4. ASTM D3359 - "Standard Test Method for Measuring Adhesion by Tape Test"
5. ASTM D4541 - "Standard Test Method for Pull-off Strength of Coatings Using Portable Adhesion Testers"
    a. Code of Federal Regulations:
        1) 40 CFR 59, Subpart D (EPA Method 24), Volatile Organic Compounds (VOC) content limitations
        2) 29 CFR 1910.1000-1500, Subpart Z, "Toxic and Hazardous Substances"
        3) 29 CFR 1910.134, toxic exposure limits
    b. Federal Standard 313, "Material Safety Data Sheets - Preparation and Submission"
    c. The Society for Protective Coatings (SSPC)
        1) SSPC-PA 1, Shop, Field, and Maintenance Painting of Steel
        2) SSPC-PA 2, Measurement of Dry Coating Thickness with Magnetic Gages
        3) SSPC-PA Guide 3, A Guide to Safety in Paint Application
        4) SSPC-SP 1, Solvent Cleaning
        5) SSPC-SP 2, Hand Tool Cleaning
        6) SSPC-SP 3, Power Tool Cleaning
        7) SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning"
        8) SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning"
        9) SSPC-SP 7/NACE No. 4, "Brush-Off Blast Cleaning
        10) SSPC-SP 10/NACE No. 2, "Near-White Blast Cleaning
        11) SSPC-SP 11, Power Tool Cleaning to Bare Metal

1.4 SUBMITTALS

A. Before Work begins, submit to Owner and Architect/Engineer 5 copies the following information pertaining to materials to be provided, for approval:
   1. List of materials to be provided, identified by manufacturer's name, product name or stock number, and indicating surfaces to which they are to be applied. Maintain one copy of list where work is being performed.
   2. Manufacturer's product data sheets and manufacturer's safety data sheets for coatings and related materials, and other potentially hazardous materials as defined in Federal Standard 313.
   3. Manufacturer's mixing, handling, and application instructions for coatings and related materials.
   4. Schedule indicating significant dates such as delivery, removal, completion of shop work, finish completion, etc.

B. Warranties agreed upon by the coating manufacturers, applicator, and Owner.

C. Coating manufacturer's approved list of application equipment to be used on this project.

D. Qualification Data: For contractor and personnel performing coating application:
   1. Written approval of applicator by the manufacturer of the specified coatings.
   2. List of projects similar to Work specified in this Section, completed in the past five years. Include description of each project, surface area, cost of the work, coating system description, and Owner contact with address and telephone number.
   3. Documentation that applicator has previously applied the specified manufacturer's coating system or similar systems in production quantities similar to this Project. Include list of such projects with description, surface area, coating system description, and Owner contact with address and telephone number.
   4. Documentation of how long applicator has been continuously in the coating application business under the current name and organization.
   5. Documentation that job foreman has a minimum of five years experience as a foreman.
   6. Documentation that painters have a minimum of three years experience as applicators of coatings to steel.

E. Manufacturer's samples for review of coating color and texture.

F. Manufacturer's decoding information so field personnel can verify shelf lives and other coded information.

1.5 QUALITY ASSURANCE

A. Architect/Engineer's Project Representatives: Architect/Engineer may assign Project representative(s) to help carry out Architect/Engineer's responsibilities at the Site, including observing progress and quality of portion of completed Work. Architect/Engineer's Project will observe progress and quality of completed Work

B. Contractor Qualifications:
   1. Firm performing Work in this Section must be able to document capability of shop or field application of coating metals and experience with similar projects.
   2. Personnel performing Work in this Section must have a minimum of five years experience in the preparation and coating of metals.

3. Supervisory Personnel must have a minimum of three years experience in supervising this type of Work. Apprentices shall be under direct supervision of an experienced supervisor.

C. Field Quality Control: Work in place shall be subject to inspection testing. Work found to be unacceptable shall be replaced with new, acceptable work.

D. Manufacturers: Materials shall be obtained from manufacturers who will, if required, send a qualified technical representative to the Project site, for the purposes of advising the Contractor of procedures and precautions for use of the materials.
   1. Do not apply coatings from different manufacturers to the same component. Provide materials that are not available from the manufacturer from sources recommended and approved in writing by the manufacturer.

E. Review specifications for requirements affecting Work of this trade. Conflict between these specifications and coating manufacturer's requirements or specifications, or other pertinent specifications, shall be immediately brought to the attention of the Architect/Engineer in writing.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading: Deliver materials to job site in original, new, and unopened packages and containers bearing the manufacturer's name and label, with name of material and color; brand name, stock number or brand code, and date of manufacture; contents by volume for major pigment and binder constituents; thinning and application instructions; safety label requirements; and batch numbers.

B. Acceptance at Site: Damaged or deteriorated materials shall be clearly identified and not used on this Project. Promptly remove rejected and noncomplying materials from the premises.

C. Storage and Protection: Store materials in tightly closed containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 40 deg Fahrenheit and not more than 90 deg Fahrenheit, unless required otherwise by manufacturer's instructions. Storage area shall be protected from exposure to direct sunlight, heat, sparks, flames, and weather.
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Store containers so manufacturer's labels are clearly displayed.
   3. Remove rags and waste from storage areas daily.

D. Waste Management and Disposal: Comply with applicable safety codes and regulations that govern the work, including Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) regulations covering waste and wastewater disposal and VOC content.

1.7 PROJECT CONDITIONS

A. Equipment, material, and appliances required for completion of Work, shall be so located and operated as to provide for maximum efficiency, public safety, persons employed at the site, and to prevent damage to new and existing construction, in accordance with the Contractor's safety plan, OSHA, and applicable safety codes and regulations.

B. Confine operations at Project site to areas permitted by laws, permits, contract, the Owner, and Contractor's safety plan.

C. Assume full responsibility for protection and safekeeping of products stored on premises, and for their proper use.

D. Provide Architect/Engineer, Architect/Engineer's Project Representative's, and Owner with access to the Work.

E. Where conditions are uncovered that is not anticipated by the specifications, notify Architect/Engineer and Owner in writing immediately, before repairs are initiated.

F. Apply coatings when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg Fahrenheit.

G. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg Fahrenheit above the dew point; or to damp or wet surfaces. Allowable minimum relative humidity shall be determined by the manufacturer.

1.8 WARRANTY

A. The manufacturer and applicator shall jointly warrant that coating will not crack, check, peel, excessively chalk, or allow exterior water to penetrate the coating for a period of five (5) years. These coating failures shall be repaired/corrected within the warranty period at no cost to the Owner.

PART 2 PRODUCTS

2.1 GENERAL

A. Select only those products whose manufacturers will have a representative visit the site periodically during the work.

B. All materials such as linseed oil, turpentine, mineral spirits, etc. shall be pure and of the highest quality.

2.2 COATINGS FOR STEEL

A. Paint for surfaces prepared according to SSPC SP-3, as well as exposed new galvanized steel surfaces:

1. Tnemec
   a. Two coats of Chembuild Series 135
   b. One coat of Endura-Shield Series 73
   c. Endura-Shield Series 73 shall be omitted on metal surfaces that will be embedded in masonry construction.
2. Or approved equal

PART 3 EXECUTION

3.1 PREPARATION

A. Dust, dirt and all loose paint should be removed from surfaces to be painted in accordance with manufacturer recommendations.

B. At existing metal elements embedded in masonry and at exposed window frames, prepare metal according to SSPC specification SP-3, Power Tool Cleaning, prior to paint application.

3.2 INSTALLATION

A. Contractor shall apply all coatings in strict accordance with the manufacturer's written instructions.

B. Allow coatings to cure in accordance with manufacturer's recommendations before proceeding with masonry installation adjacent.

3.3 CLEAN UP

A. As Work progresses remove excess material from the site.

B. At the conclusion of work remove all scaffolding and equipment used in the Work, clean up all debris and surplus material and remove same from the premises.

END OF SECTION