



Request for Bids

Mississippi Valley State University

**THIS IS
NOT AN
ORDER**

14000 Hwy 82-W #7244
Itta Bena MS 38941-1400

Web Address: www.mvsu.edu/purchasing/

Phone No: (662) 254-3319 Fax (662) 254-3314

Bid Title:

Roof Replacement Project

Requester and Requesting Department:

**Michael Switzer
Facilities Management**

Date:

7/2/2026

Bid No.

VSRB

1001055-A

Number of Pages

Change Order:

Original

Term – End of Month

Bids/Proposals – Do not include State or Federal Taxes in your bids/proposals. The University is exempted from these taxes. All order will be placed with successful bidder by Official Purchase Order.

Mississippi Valley State University is considering the purchase of the following item (s). **We ask that you submit your Bids/Proposals in three copies.** Rights are reserved to accept, or reject any and all parts of your bid/proposals. Your bid/proposals will be given consideration if received in this Office on or before the date and time below.

☐ This bid/proposal will be awarded on a line by line basis

☐ This bid/proposal will be awarded on a all or none basis

However, the University reserves the rights to award any and all bids/proposals in the best interest of the University.

Bid/Proposal opening {Date and Time}

August 6, 2026@ 2:00 p.m.

Mississippi Valley State University

By: Billy D. Scott, Interim Purchasing Director

Email: Bscott@mvsu.edu

NOTE: If you cannot quote on the exact material shown, please indicate any exceptions, giving brand names and complete specifications on any alternate. Mississippi Valley State University reserves the rights to accept any alternate of equal or greater quality or performance. We also reserve the rights to waive any irregularities that may appear in the Bids/Proposals specifications.

ITEM	QUANTITY	DESCRIPTIONS	UNIT PRICE	TOTAL NET PRICE
Please show Bid/Proposals No. on outside of Envelope				

☐ If checked, Mississippi Valley State University reserves the rights for an additional 60 days to purchase and additional 20% of this bid/proposal at the same cost.

We quote you as above F.O.B – Mississippi Valley State University. Shipment can be made within days from receipt of the order.

Terms:

Date:

Phone/Fax:

Company Quoting

Name

Address

City, State

Zip Code

Official Signature:

**PROJECT MANUAL
and
CONSTRUCTION SPECIFICATIONS**

**WALTER SILLERS
FINE ARTS CENTER REROOF**

**MISSISSIPPI VALLEY STATE UNIVERSITY
ITTA BENA, MISSISSIPPI**

JUNE 25, 2026



**Shafer-Zahner-Zahner, PLLC
OFFICE OF ARCHITECTURE**

**510 UNIVERSITY DRIVE
STARKVILLE, MISSISSIPPI 39759
TEL: (662) 323-1628**

Walter Sillers Fine Arts Center ReRoof

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ADVERTISEMENT FOR PROPOSAL

**Mississippi Valley State University
Office of Facilities Management
Itta Bena, Mississippi 38941**

Mississippi Valley State University is seeking proposals for the Roof Repair until 2:00 p.m. local time on Thursday, August 6, 2026, for the following:

Roof Repair: RFX:3160008129

For information about the Roof Repair, please contact Mr. Michael Switzer at michael.switzer@mvsu.edu

Architectural Firm: You may also contact Mr. Scott Comish, Shafer-Zahner-Zahner, Office of Architecture, at (662) 323-1628 or scomish@szzarch.com.

If you are not a registered supplier and you wish to do business with the State of Mississippi, click here to register: [State of Mississippi Supplier Registration](#). If you attempt to complete the registration process and you are already a converted vendor in MAGIC, you will receive a duplicate error message. Please call the MMRS Call Center at 601-359-1343, Option 2 for assistance in locating your vendor information.

Dates of Publication

7/8/2026

7/15/2026

Plans and specifications are being made available via paper or digital copy. Plan Holders are required to log-in or register for an account at <http://planroom.jaxblue.com> to view or order bid documents. Bid Documents are non-refundable and must be purchased through the website. Questions regarding website registration and online orders please contact Jackson Blueprint at 601-353-5803. For questions related to the contract documents, contact Shafer Zahner Zahner at 662-323-1628. No partial sets of drawings or project manuals will be issued.

To submit a bid electronically:

Sealed bids will be received electronically via MAGIC using RFx # 3160008129.

To submit a bid via US Mail, use the following Mailing Address:

Mississippi Valley State University
14000 Hwy 82-W #7244
Itta Bena, MS 38941-1400

To submit a bid via hand delivery or FedEx/UPS/Shipping Services, use the following Campus Address:

Mississippi Valley State University
Central Receiving
199 Medger Evers St
Itta Bena, MS 38941-1400

Bids will be opened at the Willie Malone Physical Plant Building Conference Room.

Please note you must submit bids via the above methods (and addresses) in order for the bid to be time-stamped and accepted. **DO NOT SUBMIT BIDS AT THE WILLIE MALONE PHYSICAL PLANT BUILDING CONFERENCE ROOM.**

The requirements of the Build America Buy America Act (BABAA) apply to this project. Each bidder must affirmatively state in its proposal whether it anticipates full compliance with the Build America, Buy America Act (BABAA) and implementing regulations at 2 CFR Part 184. Each bidder shall include a separate, clearly labeled section in its proposal titled "Build America, Buy America Act (BABAA) Compliance Statement." **For full understanding of all BABAA requirements see:**

DOCUMENT 00 21 15 BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS
INSTRUCTIONS

- REQUIREMENTS
- ATTACHMENT X TO BUILD AMERICA, BUY AMERICA ACT (BABAA) - BIDDER GUIDANCE
- BUILD AMERICA BUY AMERICA COMPLIANCE SAMPLE STEP AND FINAL CERTIFICATION LANGUAGE

DOCUMENT 00 21 13

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

- A. INTERPRETATIONS: Should bidder find discrepancies in or omissions in the drawings or project manual or be in doubt as to their written meaning, he/she should immediately notify the Architect who then will send written instruction or interpretation to all known holders of the documents. Neither Owner nor Architect will be responsible for oral instructions.
- B. ADDENDA: Addenda to drawings or project manual issued before or during time of bidding will be included in the proposal and become part of the contract.
- C. SUBSTITUTIONS: Refer to Division 1.

1.02 BIDDING

- A. BID SUBMITTAL: A bid must be either submitted electronically or physically delivered prior to the time and date stated on the Advertisement for Bids.
- B. METHOD OF BIDDING: Lump sum, single bids received on the general contract will include general construction and all work shown on drawings or specified herein.
- C. SUBCONTRACTS: Bidder is specifically advised that any persons, firm or other party to whom it is proposed to award subcontract under this contract must be acceptable and approved by the Owner.

1.03 CERTIFICATE OF RESPONSIBILITY

- A. CERTIFICATE OF RESPONSIBILITY NUMBER: Each contractor submitting a bid in excess of \$50,000 must show on his bid and on the face of the envelope containing the bid, his Certificate of Responsibility Number, as required by Section 31-3-21, Mississippi Code of 1972. If the bid does not exceed \$50,000, a notation so stating must appear on the face of the envelope.
- B. EVIDENCE: No bid will be opened, considered or accepted unless the above information is given as specified. Sufficient evidence that said Certificate of Responsibility has been issued and is in effect at the time of receiving bids must be submitted when required by the Owner.

1.04 BID SECURITY

Each bid must be accompanied by the bidder's certified check or bid bond, duly executed by a principal and having surety thereon, surety company approved by the Owner and signed by a resident agent in Mississippi, in the amount of five percent of the base bid. Bid bonds must be accompanied by appropriate Power of Attorney designating Mississippi Resident Agent.

1.05 OPENING OF BIDS

Sealed Bids will be received at the time and place **as indicated**.

1.06 PREPARATION OF BID

- A. CONDITIONS OF WORK: Each bidder must fully inform himself of conditions relating to construction of the project and employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish material and labor necessary to carry out provisions of his contract.
- B. EXAMINATION OF SITE: Bidders, including general contractor and subcontractors will visit the site, compare the drawings and the project manual with work in place and inform themselves of existing conditions. Failure to visit the site will in no way relieve the successful bidder from furnishing materials or performing work required to complete work in accordance with the drawings and the project manual without additional cost to the Owner.
- C. LAWS AND REGULATIONS: Bidder's attention is directed to the fact that applicable state laws, municipal ordinances, and rules and regulations of authorities having jurisdiction over the construction of the project apply to contract.
- D. ALTERNATES: Refer to Div 01 - Alternates
- E. OBLIGATION TO BIDDER: At the time of bid opening each bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with the drawings and the project manual, including addenda.

1.07 PROPOSALS

- A. FORM: Make proposals on forms provided and fill applicable blank spaces without interlineations, alteration or erasure. Proposals must not contain recapitulation of work to be done. No oral, telegraphic or telephonic proposals will be considered. Addenda issued during bidding will be noted on the bid form.
- B. WITHDRAWAL: Bids may be withdrawn prior to above scheduled time for opening of bids or authorized postponement thereof. Bids may not be withdrawn until **45** days after bid opening.
- C. PAPER SUBMITTAL: Submit bids in duplicate in an opaque sealed envelope as follows:

BID FOR:
"Walter Sillers Fine Arts Center ReRoof"
- D. DIRECTIONS FOR MAILING: To mail this bid the contractor should note on an envelope:

BID FOR: "Walter Sillers Fine Arts Center ReRoof"

**Mississippi Valley State University
14000 Hwy 82-W #7244
Itta Bena, MS 38941-1400**

- E. DIRECTIONS FOR HAND DELIVERING: Contractor should note on an envelope:

BID FOR: "Walter Sillers Fine Arts Center ReRoof"

**Mississippi Valley State University
Central Receiving
199 Medger Evers St
Itta Bena, MS 38941-1400**

- F. DIRECTIONS FOR ELECTRONIC DELIVERING:

1. Sealed bids will be received electronically via MAGIC using RFx # 3160007537.

If you are not a registered supplier and you wish to do business with the State of Mississippi, click here to register: [State of Mississippi Supplier Registration](#). If you attempt to complete the registration process and you are already a converted vendor in MAGIC, you will receive a duplicate error message. Please call the MMRS Call Center at 601-359-1343, Option 2 for assistance in locating your vendor information.

2. SUBMITTAL OF ELECTRONIC BIDS: Each electronically submitted bid must be submitted in "pdf" format and shall contain the same information and forms as required for the paper bids. Note – submitting bid electronically does not relieve the bidder from any responsibility or requirement listed in the construction documents. In the event that an electronically submitted bid has a corrupted attachment, the bid will be considered null and void.

1.08 CONTRACTS

- A. AWARD OF CONTRACT: The contract will be awarded on the basis of the lowest and best base bid or the lowest and best combination of base bid and those alternates which produce a total within available funds. The Owner reserves the right to waive informalities and to reject any or all bids. Form of contract: AIA Document A101 - 2017 Edition.
- B. DISQUALIFICATION OF BIDDER: The Owner reserves the right to award to other than the low bidder when, in the Owner's judgement, it is in the best interest to do so. Three such reasons are but are not limited to:
1. Bidder being in arrears on existing contracts.
 2. Bidder being in litigation on other contracts.
 3. Bidder having defaulted on a previous contract.
- C. SECURITY FOR FAITHFUL PERFORMANCE: Simultaneously with his delivery of the executed contract, the contractor will furnish surety bond or bonds as security for faithful performance of this contract. Surety on such bond or bonds will be by duly authorized surety company satisfactory to the Owner. Form of surety: AIA A312.
- D. TIME OF COMPLETION: The Bidder must agree to commence work on or before date specified in the written "Proceed Order" and to fully complete the project within the number of calendar days indicated on the form of proposal and the Agreement between the Owner and Contractor.
- E. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT: The successful bidder, upon his failure or refusal to execute and deliver the contract and bond required

within ten days after he has received notice of the acceptance of his bid, will forfeit to the Owner as liquidated damages security the deposited with his bid.

- F. GENERAL CONDITIONS: Shall be AIA Document A201- 2017 Edition. Refer to Document 00800 for modifications to the general conditions. Copies of this document may be obtained from the Mississippi Chapter of the AIA in Jackson, MS, phone 601-948-6735.

1.09 GUARANTEE

- A. All work performed under this contract shall be free from defects in workmanship and materials for a period of one year from date of Substantial Completion of the project or portion thereof designated in the Certificate of Substantial Completion. The date of commencement of warranties for items in the list of items to be completed or corrected and attached to the Certificate of Substantial Completion will be the date of final payment. Some work performed under this contract shall have a warranty period that exceeds one year; refer to specific specification sections.
- B. During the warranty period, labor, materials and services required to repair defects and damages shall be the responsibility of the contractor.
- C. Light bulbs are excluded from the one-year warranty period.
- D. Contractors Warranty Statement:
1. The Contractor hereby warrants to the Owner that the work will be of good quality, free from faults and defects, and in conformance with the drawings and specifications in all material respects. This warranty shall be in addition to, and not in lieu of, all other warranties of contractor set forth herein and provided by law.
 2. All warranties and guarantees with respect to all appliances, machinery and equipment installed in the work by the Contractor, subcontractor, supplier and/or manufacturer are hereby assigned to the Owner, and the Owner is hereby subrogated to all of the same.

1.10 WORK SCHEDULE /TIME OF COMPLETION /LIQUIDATED DAMAGES

- A. Coordinate the project schedule and operation with the Owner's requests.
- B. The contractor shall at all times conduct his operation as to insure the least inconvenience to the normal operations of school activities including but not limited to the arrival and dismissal of students, access of visitors and staff, class changes, and deliveries to the campus.
- C. The base bid portion and all accepted alternates shall be substantially complete within **120 consecutive calendar days** from the date of issuance of the "proceed order" and shall reach "final completion" with all Punch List items complete within **7 consecutive calendar days after** the date of Substantial Completion.
- D. The Contractor, promptly after being awarded the contract, shall prepare and submit for the Owner's and Architect's information, a Contractor's Construction Schedule for the

work. The schedule shall not exceed the time limits established by the Contract Documents.

- E. The Contractor and Owner agree that time is of the essence in the performance by the Contractor under the contract. Should the contractor fail to complete the work within the time period set forth in this agreement, the Owner shall be damaged by such delay. The Owner and Contractor acknowledge that the damages suffered by the Owner in such event shall be difficult, if not impossible, to determine at the time of or following such delay. Accordingly, the Contractor and Owner estimate and agree upon the amount of such damages to **be \$250.00 for each day** substantial completion is delayed beyond the specified time of completion as stated in "C" above. Further, the Contractor and Owner estimate and agree upon the amount of such damages to be **\$250.00 for each day** final completion is delayed beyond the specified time of completion as stated in "C" above.
- F. The Contractor must submit each month with his Application for Payment, a separate letter stating that he is requesting an extension of time or that he has no need for an extension of time for that period. No payment on a monthly application will be made until the letter is received. Complete justification, including weather reports, correspondence, etc. must be included for each day's request for extension. A Contractor's letter or statement will not be considered as adequate justification.
- G. Excusable delays shall be documented by written notice delivered to the Owner on or before the fifteenth (15th) day after the end of each calendar month. If the Contractor fails to timely report excusable delays, then no such excusable delay shall be deemed to have occurred during such reporting period for which a report was not timely given.
- H. Construction Delays and Contractor's Plan of Recovery: If the construction work at any time is delayed or falls behind the schedule as established by the Contractor's Construction Schedule, the Contractor shall promptly submit a plan of recovery, which outlines in detail, the methods and means required to ensure that the project is brought back in schedule. The Contractor's Plan of Recovery shall address manpower, materials and coordination efforts as required to successfully implement the Contractor's Construction Schedule. The Contractor's Plan of Recovery shall be submitted to the Owner and Architect for approval not more than five (5) calendar days from the date of the Architect's Letter of Request for the Plan of Recovery.
- I. Contractor's Daily Job reports: The Contractor shall execute Daily Job Reports which address weather conditions, status of indoor/outdoor work, phase of construction, crew sizes/capacity and subcontractor's work progress. The Contractor's Daily Job Reports shall be submitted to the Architect on a weekly basis.

1.11 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall limit his use and access of premises for work as described in the drawings and specifications.

1.12 CODES AND STANDARDS

- A. Strictly comply with the latest edition of the International Building Code and other applicable local, municipal, state and federal codes.

1.13 PERMITS AND INSPECTIONS

- A. All permits and inspections required for the execution of the work shall be provided by the Contractor at no additional cost to the Owner.

- B. All tap and meter fees shall be paid by the Contractor at no additional cost to the Owner.
- C. Obtain certificates of approval, acceptance and compliance with regulations of agencies having jurisdiction. Work shall not be deemed complete until such certificates have been delivered to the Owner.
- D. The Contractor will be responsible for reimbursing the Architect for any Inspections in excess of one Final Inspection and one further inspection to ensure that all 'punch-listed' items have been corrected in a professional and workmanlike manner.

1.14 BID DOCUMENTS

Plans and Specifications are available for viewing at the office of the Architect, Shafer Zahner Zahner, 510 University Drive, Starkville, MS 39759, telephone (662) 323-1628, or may be obtained as outlined below:

- A. Plans and specifications are being made available via paper or digital copy. Plan Holders are required to log-in or register for an account at <http://planroom.jaxblue.com> to view or order bid documents. Bid Documents are non-refundable and must be purchased through the website. Questions regarding website registration and online orders please contact Jackson Blueprint at 601-353-5803. For questions related to the contract documents, contact Shafer Zahner Zahner at 662-323-1628. No partial sets of drawings or project manuals will be issued.

1.15 JOB DOCUMENTS

- A. The Contractor will responsible for precuring their own contract document sets. Digital PDF files can be obtained through the Architect's office.
- B. Additional sets may be obtained from the Architect upon payment of printing costs plus 10% for handling.

END OF DOCUMENT

DOCUMENT 00 21 15
BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS INSTRUCTIONS

**THE CONTRACTOR WILL BE RESPONSIBLE FOR THE FOLLOWING REQUIREMENTS
(THESE REQUIREMENTS ARE REQUIREMENTS THAT ARE BOUND TO THIS PROJECT)**

1. Applicability of Build America, Buy America (BABA)

This project is funded with federal financial assistance under Title III of the Higher Education Act and is subject to the Build America, Buy America Act (Pub. L. 117-58) and its implementing regulations at 2 CFR Part 184.

All iron, steel, manufactured products, and construction materials used in the project must be produced in the United States, unless a waiver is approved by the U.S. Department of Education.

2. Bidder Guidance (Informational)

Bidders are encouraged to review **Attachment X** – Build America, Buy America Act (BABAA) Bidder Guidance, which is provided for informational purposes only to assist bidders in preparing their BABAA Compliance Statement.

In the event of any inconsistency between this **RFP** and **Attachment X**, the RFP shall govern.

3. Mandatory Bidder Disclosure – BABA Compliance

Each bidder must affirmatively state in its proposal whether it anticipates full compliance with the Build America, Buy America Act (BABAA) and implementing regulations at 2 CFR Part 184.

Each bidder shall include a separate, clearly labeled section in its proposal titled “Build America, Buy America Act (BABAA) Compliance Statement.”

The BABAA Compliance Statement must clearly indicate whether the bidder anticipates full compliance with BABAA requirements for all iron, steel, manufactured products, and construction materials proposed for use in the project.

If the bidder anticipates that any item, system, or component will not comply with BABAA requirements, the statement must specifically identify:

- The item or system (e.g., elevator system, controls, rails, doors, roofing materials)
- The manufacturer (if known)
- The country of manufacture
- The basis for the anticipated waiver request (e.g., non-availability or unreasonable cost)

At the proposal stage, bidders are not required to submit manufacturer certifications or waiver requests. Such documentation will be required after award and prior to installation, if applicable.

Failure to disclose known or reasonably anticipated BABAA non-compliance at the proposal stage may render a proposal nonresponsive or otherwise affect award determination.

DOCUMENT 00 21 15
BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS INSTRUCTIONS

**THE CONTRACTOR WILL BE RESPONSIBLE FOR THE FOLLOWING REQUIREMENTS
(THESE REQUIREMENTS ARE REQUIREMENTS THAT ARE BOUND TO THIS PROJECT)**

4. University Responsibility for Waivers

The University, as the recipient of federal funds, retains sole authority to determine whether to request a BABAA waiver from the U.S. Department of Education.

Submission of documentation by the bidder does not guarantee that a waiver will be requested or approved. The University reserves the right, in its sole discretion, to reject proposals that are dependent on waivers that cannot be adequately justified or approved.

5. Prohibition of Assumed or Implied Waivers

No bidder may:

- Assume a BABAA waiver will be granted
- Proceed on the basis that BABAA requirements will be waived
- Substitute noncompliant materials without prior written approval

All BABAA waivers must be formally approved in writing by the U.S. Department of Education prior to installation or incorporation of materials into the project

6. Award Conditions

Final contract award is contingent upon:

- Demonstrated BABAA compliance; or
- Approval of any required BABAA waiver(s) by the U.S. Department of Education

The University reserves the right to delay award or issue a notice to proceed, pending waiver determination.

DOCUMENT 00 21 15
BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS INSTRUCTIONS

ATTACHMENT X to Build America, Buy America Act (BABAA) - Bidder Guidance

Purpose

This guidance is provided to help bidders understand and respond to the Build America, Buy America Act (BABAA) requirements applicable to this federally funded construction project. This document is informational and does not replace the RFP or contract requirements.

1. Applicability

This project is funded with federal financial assistance and is subject to the Build America, Buy America Act (BABAA) and implementing regulations at 2 CFR Part 184.

BABAA requires that iron, steel, manufactured products, and construction materials used in covered construction projects be produced in the United States, unless a waiver is approved by the U.S. Department of Education.

2. What Bidders Must Do at Proposal Submission

At the proposal stage, bidders are required to:

- Include a separate section titled “Build America, Buy America Act (BABAA) Compliance Statement”
- State whether full compliance with BABAA is anticipated or
- Disclose any items, systems, or components that may require a waiver

Bidders are not required to submit manufacturer certifications or waiver requests with their proposal.

3. What to Disclose if a Waiver May Be Needed

If a bidder anticipates that one or more items may not comply with BABAA, the Compliance Statement must identify:

- The item or system (e.g., elevator system, controls, rails, roofing materials)
- The manufacturer (if known)
- The country of manufacture
- The basis for the anticipated waiver (e.g., non-availability or unreasonable cost)

Early disclosure is required so the University can evaluate feasibility and compliance risk.

4. Certifications and Documentation (After Award)

After award and prior to installation, the University will require documentation demonstrating BABAA compliance. This may include:

- Final manufacturer certifications or
- Step certifications for iron and steel products

Certification formats consistent with U.S. Department of Education guidance will be used.

DOCUMENT 00 21 15
BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS INSTRUCTIONS

ATTACHMENT X to Build America, Buy America Act (BABAA) - Bidder Guidance

5. Waivers

- Only the University, as the federal grant recipient, may request a BABAA waiver.
- Bidders may not assume that a waiver will be granted.
- No non-compliant materials may be installed without written waiver approval from the U.S. Department of Education.

6. Key Reminder

Failure to clearly disclose anticipated BABAA compliance issues at the proposal stage may render a proposal nonresponsive or affect award eligibility.

FAQs

Q1. Does Build America, Buy America Act (BABAA) apply to this project?

A. Yes. This project is subject to the Build America, Buy America Act and its implementing regulations.

Q2. Do bidders need to submit manufacturer certifications with their proposal?

A. No. At the proposal stage, bidders are required to provide disclosure only. Certifications will be required after award and prior to installation, if applicable.

Q3. What is a BABAA Compliance Statement?

A. It is a required section of the proposal in which the bidder states whether BABAA compliance is anticipated or identifies any items that may require a waiver. The responses below are provided as examples:

Example A – Full compliance

Based on our proposed materials and suppliers, we anticipate full compliance with Build America, Buy America requirements. No waivers are currently anticipated. Final manufacturer certifications will be provided prior to installation.

Example B – Waiver anticipated

The proposed elevator system includes components manufactured outside the United States. Based on current market availability, a Build America, Buy America waiver may be required for the elevator drive system and controls.

Manufacturer: XYZ Elevator Co.

Country of manufacture: Multiple.

Basis: Non-availability.

DOCUMENT 00 21 15
BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS INSTRUCTIONS

ATTACHMENT X to Build America, Buy America Act (BABAA) - Bidder Guidance

Q4. Who applies for a BABAA waiver?

A. The University, as the recipient of federal funds, is solely responsible for submitting BABAA waiver requests to the U.S. Department of Education.

Q5. Can bidders assume a waiver will be approved?

A. No. All BABAA waivers must be formally approved in writing by the U.S. Department of Education before non-compliant materials may be used.

Q6. What happens if a bidder fails to disclose anticipated BABAA issues?

A. Failure to disclose known or anticipated BABAA non-compliance may result in the proposal being deemed nonresponsive or may impact award determination.

Q7. What types of certifications will be required after award?

A. Depending on the materials and project risk, the University may require either step certifications or final manufacturer certifications consistent with U.S. Department of Education guidance.

DOCUMENT 00 21 15
BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS INSTRUCTIONS

BUILD AMERICA BUY AMERICA COMPLIANCE
SAMPLE STEP AND FINAL CERTIFICATION LANGUAGE

1. Step Certification

A step certification is a type of certification process under which each handler (supplier, fabricator, manufacturer, processor, etc.) of the subject products and materials certifies that their step in the process was domestically performed. Each time a step in the manufacturing process takes place, the manufacturer delivers its work along with a certification of its origin. Step certification creates a paper trail which documents the location of the manufacturing process involved with the production of subject products and materials. Sample step certification language is included below.

SAMPLE STEP CERTIFICATION LETTER

On Company letterhead:

Date
Company Name
Company Address
City, State Zip

Subject: Build America, Buy America Act Step Certification for Project (Insert Official Project Name and Number here)

I, (company representative name), certify the (e.g., melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the Build America, Buy America Act (BABAA) requirement as mandated in the Infrastructure Investment and Jobs Act (IIJA) Pub. L. No. 117-58, §§ 70901-52.

Item, Products and/or Materials:

1. XXXX
2. XXXX
3. XXXX

Such process took place at the following location:

If any of the above compliance statements change while providing material to this project, we will immediately notify the prime contractor and the engineer.

Signed by company representative.

DOCUMENT 00 21 15
BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS INSTRUCTIONS

BUILD AMERICA BUY AMERICA COMPLIANCE
SAMPLE STEP AND FINAL CERTIFICATION LANGUAGE

2. Final Certification

Although obtaining step certifications is a best practice, if not possible, affected Department of Education grantees and their subrecipients may consider requesting a final manufacturer certification letter. For a final certification letter, the final manufacturer that delivers the product to the worksite, vendor, or contractor provides a certification asserting that all manufacturing processes occurred in the United States. While this type of certification may be acceptable, it may not provide the same degree of assurance, and therefore additional documentation may be needed if the certification is lacking important information. Sample final certification language is included below.

SAMPLE FINAL CERTIFICATION LETTER

Company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: Build America, Buy America Act Certification for Project (PROJECT NAME & NUMBER)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the Build America, Buy America Act (BABAA) requirement as mandated in the Infrastructure Investment and Jobs Act (IIJA) Pub. L. No. 117-58, §§ 70901-52.

Item, Products and/or Materials:

1. XXXX
2. XXXX
3. XXXX

Such process took place at the following location:

If any of the above compliance statements change while providing material to this project, we will immediately notify the prime contractor and the engineer.

Signed by company representative

DOCUMENT 00 21 15
BUILD AMERICA BUY AMERICA SPECIAL CONDITIONS INSTRUCTIONS

BUILD AMERICA BUY AMERICA COMPLIANCE
SAMPLE STEP AND FINAL CERTIFICATION LANGUAGE

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GENERAL CONSTRUCTION BID FORM

DATE: _____

Proposal of: _____

Project: **Walter Sillers Fine Arts Center ReRoof**

Owner: **Mississippi Valley State University**
 Itta Bena, Mississippi

Having carefully examined the Contract Documents, **Walter Sillers Fine Arts Center ReRoof**, prepared by Shafer-Zahner-Zahner, PLLC and dated **June 25, 2026**, as well as the premises and conditions affecting the work, the undersigned proposes to furnish labor, materials, and services required by the Contract Documents for the sum of:

BASE BID:

(Write in the amount of the base bid in words and numbers. The written word shall govern.)

_____ Dollars

(\$ _____)

ADD ALTERNATES:

ADD ALTERNATE #1: PATCH, GRIND, CLEAN, PREP, PRIME & PAINT EXISTING CONCRETE MECHANICAL SCREENS. (DO NOT PAINT THE MASONRY/TERRA COTTA BLOCKS). SEE 2/A21 FOR ADDITIONAL INFORMATION:

Add: _____ Dollars

(\$ _____)

ADD ALTERNATE #2: CLEAN, PREP AND INSTALL COATING ON 3 CONCRETE CANOPIES. SEE SHEET A10, A15 AND 4/A22 FOR ADDITIONAL INFORMATION.

Add: _____ Dollars

(\$ _____)

ADD ALTERNATE #3: PROVIDE & INSTALL NEW DRAIN GUARD AT EXISTING CONCRETE CANOPIES. SEE PLANS AND DETAIL 4/ A22 FOR ADDITIONAL INFORMATION.

Add: _____ Dollars

(\$ _____)

COMPLETION TIME:

Time of Completion is an important consideration on this project. The base bid portion shall be substantially complete within **120 consecutive calendar days** from the date of issuance of the "proceed order".

BID SECURITY:

Enclose a Bid Bond signed by a Mississippi Resident Agent or a certified check made payable to the **Mississippi Valley State University** in an amount equal to at least 5% of the Base Bid, guaranteeing execution and delivery of a Contract, Contract Bond and Certificate of Insurance within 10 days as specified in accordance with Instructions to Bidders 1.04.

ADDENDA

Receipt of the following Addenda is acknowledged:

No. _____	Date: _____
No. _____	Date: _____
No. _____	Date: _____
No. _____	Date: _____
No. _____	Date: _____

BIDDER QUALIFICATIONS:

I certify that I meet all qualifications specified for this project, and that for Base Bids exceeding \$50,000.00, I possess a Mississippi Certificate of Responsibility valid for this project. Mississippi Certificate of Responsibility Number _____.

NOTE: When the bidder is a joint venture, the joint venture Mississippi Certificate of Responsibility Number is _____, or the joint venture member firms and their respective Mississippi Certificate of Responsibility Numbers are _____.
Bidder certifies that he/she is a:

_____	Resident Contractor
	or
_____	Non-Resident Contractor

SUBCONTRACTORS

Windows _____

Certificate of Responsibility # _____

Mechanical _____

Certificate of Responsibility # _____

Plumbing _____

Certificate of Responsibility # _____

Electrical _____

Certificate of Responsibility # _____

ACCEPTANCE:

I agree to hold this proposal open for acceptance for **45** days after the bid date and certify that I am authorized to enter my firm into a binding contract if this proposal is accepted.

Signature: _____ Date: _____

Name & Title: _____

Firm: _____

(Exact name of firm corresponding to Mississippi Certificate of Responsibility Number and Bid Bond as applicable, and as it is to appear in a contract.)

TO BE COMPLETED IF A CORPORATION:

_____ (Company Name) Our Corporation
is chartered under the laws of the State of _____, and the names, titles, and
business addresses of the executives are as follows.

President Address _____

Secretary Address _____

Treasurer Address _____

TO BE COMPLETED IF A PARTNERSHIP: Our Partnership is composed of the following individuals:

Name Address _____

Name Address _____

Name Address _____

TO BE COMPLETED IF A SOLE PROPRIETORSHIP:

_____ (Company Name)

Name

Address

END OF DOCUMENT 00 41 00

DOCUMENT 00 52 00 - AGREEMENT FORMS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. SCOPE: The "Agreement Between Owner and Contractor." AIA Document A101, 2017, is part of this Contract exactly as though fully written and incorporated herein.
- B. COPY: Contractor's are presumed to be familiar with this document, a copy of which may be obtained from the Mississippi Chapter of the AIA in Jackson, MS, phone: 601-948-6735.

END OF SECTION

**SECTION 00 61 00
CONTRACT BONDS**

PART 1 – GENERAL

- 1.1 PERFORMANCE BOND: The Contractor shall provide an executed AIA Document A 312 2010 Performance Bond as part of the contract Documents.
- 1.2 PERFORMANCE BOND SUPPLEMENTS: The following supplements modify, change, delete from or add to the Performance Bond AIA Document A 312, 2010 and must be included in the executed document.
 - A. Add the phrases “all of its obligations of” after the word “performs” and “in accordance with the terms thereof” after the words “the Construction Contract”.
- 1.3 PAYMENT BOND: The Contractor shall provide an executed AIA Document D312 2010 Payment Bond as part of the Contract Document. No modifications, changes or deletions are required for the Payment Bond.
- 1.4 STATE LAW: The above-mentioned documents are construction industry standards but whenever a conflict arises between the documents and State of Mississippi Law, the State law governs.
- 1.5 POWER OF ATTORNEY: Each Bond must be accompanied by an appropriate Power of Attorney.
- 1.6 PERFORMANCE BOND: Shall be issued by a company on the Department of the Treasury’s List of Approved Sureties, as per Circular 570.

--END OF SECTION--

SECTION 00 62 16
CERTIFICATE OF INSURANCE INSTRUCTIONS

- A. The *Certificate of Insurance* is a tabulation of insurance required for this Project as specified in Article 11 entitled *Insurance and Bonds* in the General Conditions (AIA Document A201, 2017 edition).
- B. The *Certificate of Insurance* must be completed, certified by the original signature of a Mississippi Resident Insurance Agency and bound in each set of the Contract Documents.
- C. Indicate Insured, Project, Companies providing coverage, policy numbers and policy periods in the blanks as applicable.
- D. If the "OWNERS / CONTRACTORS PROTECTIVE LIABILITY" insurance is part of the Commercial General Liability Insurance Policy, or included by endorsement, indicate the policy number and period of the CGL policy in the "OWNERS / CONTRACTORS PROTECTIVE LIABILITY" blank spaces.
- E. Automobile Liability Insurance may be provided which covers Bodily Injury and Property Damage in one (1) Combined Single Limit, or may be provided with separate minimum limits as shown on the Certificate of Insurance and specified in Article 11 of the Supplementary Conditions. The person signing the Certificate of Insurance should show which option the Contractor has selected by marking out the coverage that is not provided under the policies indicated.
- F. OTHER INSURANCE (if required) will be indicated by typing in the "OTHER" block and detailed in Article 11 of the Supplementary Conditions.
- G. CERTIFICATION wording may not be changed without specific written approval from the Owner.
- H. "Riders" or other unsolicited attachments are not allowed as part of the *Certificate of Insurance* unless specifically requested in writing by the Owner, or specified as part of the requirements for this Project.
- I. CAUTION: The *Certificate of Insurance* is intended to be used for all Projects. The Contractor must provide all insurance specified in the Contract Documents for this Project, whether indicated on this form, or not. The Contractor must verify all insurance has been provided as required.
- J. The Owner and Architect and all of their agents and employees are included as additional insureds on the Contractor's insurance.

--END OF SECTION--

DOCUMENT 00 72 00 - GENERAL CONDITIONS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. SCOPE: The "General Conditions of the Contract for Construction." AIA Document A201, 2017, is part of this Contract exactly as though fully written and incorporated herein.
- B. COPY: Contractor's are presumed to be familiar with this document, a copy of which may be obtained from the Architect's Office. A copy will be furnished upon written request.

END OF SECTION

DOCUMENT 00 73 00 - SUPPLEMENTARY CONDITIONS

MODIFICATIONS TO THE GENERAL CONDITIONS

PART 1 GENERAL

1.01 SUPPLEMENTARY CONDITIONS

- A. The following supplements modify, change, delete from or add to the General Conditions of the Contract for Construction, AIA Document A201, 2017. Where any article of the general conditions is modified or deleted by these supplementary conditions, the unaltered provisions of that article, paragraph, sub-paragraph or clause shall remain in effect.
- B. The AIA Document A201, the Architect's Supplementary Conditions, and applicable provisions listed within Division 1, govern Technical Specifications Divisions 2 through 16 within this Project Manual and are binding as if repeated in each Section.

1.02 ARTICLE 1 CONTRACT DOCUMENTS

- A. Revise 1.1.7, to read:
1.1.7 Project Manual is the volume which includes the bidding requirements, sample forms and certain Contract Documents such as the General Conditions of the Contract, Supplementary Conditions, Division 1 and Technical Specifications Divisions 2 through 16.
- B. Add to 1.2, the following subparagraph 1.2.4:
1.2.4 In cases of discrepancies concerning dimensions, quality and location, the Drawings shall take precedence over the Specifications. Explanatory notes on the Drawings shall take precedence over smaller scaled drawings and figured dimensions shall take precedence over scaled measurements. Where figures are not shown, scaled measurements shall be followed but shall in all cases be verified by measuring the actual conditions of the work already in place. In cases of discrepancy concerning quality and application of material and non-technical requirements over materials, the Specifications shall take precedence over the Drawings. Any discrepancies or inconsistencies in the contract documents shall be brought to the attention of the Architect as soon as they are discovered.

1.03 ARTICLE 3 CONTRACTOR

- A. Add to 3.5.1, the following subparagraph 3.5.1.1:
3.5.1.1 This provision shall in no manner alter, impair or affect any warranty implied as a matter of law from the Contract Documents, but shall continue unabated.
- B. Add to 3.7.2, the following subparagraph 3.7.2.1:
3.7.2.1 Any reference made in the contract Documents to codes, ordinances or manufacturer's instructions shall mean the latest edition of each in effect as of the Contract date.
- C. Add to 3.12.1, the following subparagraph 3.12.1.1:
3.12.1.1 The term "shop drawings" as used herein also includes but is not limited to fabrication, erection, layout and setting drawings, or manufacturer's standard drawings to show that the materials equipment or systems and the position thereof conforms to the Contract requirements. The term "manufacturer" as used herein applies to standard units, usually mass produced. The term "fabricated" as used herein means specifically assembled items or items made out of selected materials to meet individual design requirements. Shop Drawings shall establish the actual detail of all manufactured or fabricated items, indicate the proper relation to adjoining work, amplify the design details of mechanical and electrical equipment in proper relation to the

physical spaces provided within the structure and incorporate minor changes of design to suit actual conditions.

- D. Add to 3.12.6, the following subparagraph 3.12.6.1:
3.12.6.1 The submission of shop drawings and samples to the Architect is required for only those items specifically indicated in the Project Manual. If the Contractor submits additional items for review, the Architect shall not be responsible for procuring Shop Drawings for his own use as he may require for the progress of the work.

1.04 ARTICLE 4 ARCHITECT

- A. Add to 4.2.13, the following clause 4.2.13.1:
4.2.13.1. The term "aesthetic effect " as used herein refers to color, texture, profile and juxtaposition of masses. The Architect shall be the sole interpreter of the design intent with respect to such matters, but the Architect's authority with respect thereto shall not contravene any other rights of either the Owner or the Contractor ascribed to them by other provisions of the Contract.

1.05 ARTICLE 9 PAYMENTS AND COMPLETION

- A. Add to Subparagraph 9.3.1 the following sentence:
The form of Application for Payment shall be AIA Document G702, "Application and Certificate for Payment" 1992 Edition, supported by AIA Document G702A, Continuation Sheet.
- B. Add to Article 9 the following paragraph 9.11 and subparagraph 9.11.1:
9.11 Liquidated Damages:
9.11.1 Time being of the essence and a matter of material consideration thereof, a reasonable estimate in advance is established to cover losses incurred by the Owner if the project is not substantially complete on the date set forth in the contract documents. The Contractor and his Surety will be liable for and will pay the Owner the sums hereinafter stipulated (in paragraph 3.3 of AIA Document A101-1997, Standard Form of Agreement Between Owner and Contractor) as fixed and agreed as liquidated damages for each calendar day of delay until the work is substantially complete: **Two Hundred and Fifty Dollars per calendar day unless circumstances dictate otherwise in the discretion of the Owner.**

1.06 ARTICLE 11 INSURANCE AND BONDS

- A. Modify the first sentence of Subparagraph 11.1.1:
Replace the words "jurisdiction in which the Project is located" with the words "State of Mississippi."
- B. Add a new Subparagraph 11.1.4 as follows:

11.1.4 The Contractor's limits of liability shall be written for not less than the following:

.1 GENERAL LIABILITY:

Commercial General Liability
(Including XCU)

General Aggregate	\$ 1,000,000.00 Aggregate
Products & Completed Operations	\$ 1,000,000.00 Aggregate
Personal & Advertising Injury	\$ 500,000.00 Per Occurrence
Bodily Injury & Property Damage.....	\$ 500,000.00 Per Occurrence
Fire Damage Liability	\$ 50,000.00 Per Occurrence
Medical Expense	\$ 5,000.00 Per Person

.2 OWNERS & CONTRACTORS PROTECTIVE LIABILITY:

Bodily Injury & Property Damage.....\$ 1,000,000.00 Aggregate
Bodily Injury & Property Damage.....\$ 500,000.00 Per Occurrence

.3 AUTOMOBILE LIABILITY:

(Owned, Non-owned & Hired Vehicles)

Contractor Insurance Option Number 1:

Bodily Injury & Property Damage..... \$ 500,000.00 Per Occurrence
(Combined Single Limit)

Contractor Insurance Option Number 2:

Bodily Injury \$ 250,000.00 Per Person
Bodily Injury \$ 500,000.00 Per Accident
Property Damage \$ 100,000.00 Per Occurrence

.4 EXCESS LIABILITY:

(Umbrella on projects over \$500,000)

Bodily Injury & Property Damage..... \$ 1,000,000.00 Aggregate
(Combined Single Limit)

.5 WORKERS' COMPENSATION:

(As required by Statute)

EMPLOYERS' LIABILITY:

Accident..... \$ 100,000.00 Per Occurrence
Disease \$ 500,000.00 Policy Limit
Disease \$ 100,000.00 Per Employee

.6 PROPERTY INSURANCE:

Builder's Risk..... Equal to Value of Work
or
Installation Floater Equal to Value of Work

C. Delete Subparagraph 11.4.4 in its entirety.

1.07 NEPA CLEAN AIR AND WATER ACT

- A. Contracts and subcontracts of amounts in excess of \$100,000 shall require compliance with all applicable standards, orders or regulations issued pursuant to the Clean Air Act of 1970 (42 U.S.C. 1857 et, seq.) and the Federal Water Pollution Control Act 33 U.S.C. 1251 et. seq. as amended. Violations shall be reported to the Federal Environmental Protection Agency.
- B. Contractors shall be required to comply with the Energy Conservation Plan of the Mississippi State Department of Economic and Community Development, Division of Energy and Transportation.

END OF DOCUMENT

SECTION 00 91 13 - ADDENDA

1.1 ADDENDA

Any Addendum issued on this Project will be included in Section 00 91 13 and become a part of the *Standard Form of Agreement Between the Owner and the Contractor*.

***** END OF SECTION *****

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.02 PROJECT DESCRIPTION

- A. **The Project consists of reroofing of the existing Fine Arts Building. The primary roof is to be a modified bitumen system over tapered insulation.**

1.03 WORK UNDER OTHER CONTRACTS

- A. The Owner reserves the right to occupy and renovate or have contracted to renovate portions of the existing building not affected under the scope of this work. The work undertaken by Owner will be performed concurrently with the work described in these documents. Therefore, the Contractor must make every effort to coordinate work under this contract with the Owner

1.04 REQUEST FOR APPROVED EQUALS

- A. The materials, products and equipment described in the Bid Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten (10) days prior to the Date of Bid. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including the drawings, product information, performance test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work that incorporation of the proposed substitution would require shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.
- B. Products submitted as described above for review for acceptance as an "Approved Equal" to the products specified will be reviewed and a decision issued prior to the Bid Date. Notification of approvals will be included in addenda prior to the time of Bid.

1.05 WORK SEQUENCE

- A. Coordination will be required between the Contractor and other Vendors/Suppliers/Contractors employed by the owner.

1.06 CONTRACTOR USE OF PREMISES

- A. General: Limit use of premises for construction activities in areas indicated on the Drawings.

1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed. **DO NOT ENTER, STORE MATERIALS, WORK FROM, OR IN ANY WAY DISTURB THE SCHOOL OPERATIONS. ONSITE LAYDOWN AREA WILL BE PROVIDED TO THE CONTRACTOR, BUT WORK OVER TURF AND TRACK SURFACES ARE TO MINIMIZED, ESPECIALLY HEAVY EQUIPMENT TRAFFIC, AND ALL PROTECTION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.**
2. The Contractor shall install silt fences or other filtration system as required to prevent dirt and construction debris from leaving the construction site or clogging drainage systems.
3. Keep driveways and entrances serving the site clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storing of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
4. Location of materials and equipment storage to and during construction shall be coordinated with the Owner if occurring in areas other than that designated for "STAGING" on the site plan. Contractor is to acquaint all subcontractors, suppliers, workers, etc. as necessary to direct vehicles, equipment, and personnel to areas designed for Contractor's use during construction.
5. Toilet Rooms and other such facilities inside the school buildings are not to be used by Contractor's personnel.
6. Burial of Waste materials: Do not dispose of waste, whether inert, organic or hazardous material, on site either by burial or by burning. All wastes are to be removed from the site and disposed of in a proper and legal manner.

1.07 OWNER OCCUPANCY

- A. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.
 1. Architect will prepare a partial Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
 2. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
 3. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.08 OWNER CONTACT

- A. Unless otherwise directed in writing the Owner's contact is to be:

Mr. Michael Switzer at michael.switzer@mvsu.edu.

1.09 COORDINATION OF SITE VISITS BY ARCHITECT

- A. In situations where the General Contractor needs a portion of work to be observed by the Architect and/or the Architect's consultant(s), the Contractor shall keep the Architect informed of the schedule weekly so that the Architect will have, at the very least, 24 hours

notice of when the portion of work will be complete and ready to be inspected. With the understanding that construction activities quite often require a flexible schedule, the Architect will attempt to respond to the Contractor's request for inspection. The Contractor should be careful not to schedule work so tightly that there will not be time for a 24 hour lag between the time a stage of work is ready for inspection and the time the inspection takes place.

1.10 COMPENSATION FOR ADDITIONAL SERVICES

- A. Where the Contract for work provides for the compensation for additional work by the Architect at the Contractor's expense, the following process may be employed.
- B. The circumstances and additional charges shall be issued in writing by the Architect. The amount shall be deducted by a Change Order, or a Change Directive, from the Contract and the money shall be paid by the Owner to the Architect. These charges by the Architect are totally independent of, and are in addition to, any liquidated damages that may be stated in the Contract or otherwise sought by the Owner.

PART 2 – PRODUCTS (Not applicable).

PART 3 – EXECUTION (Not applicable).

END OF SECTION 01 11 00

SECTION 01 11 13

SUMMARY OF PROJECT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project - Work covered by Contract Documents for this portion of the project.

1.02 RELATED SECTIONS

- A. General Conditions and Supplementary Conditions: Duties and responsibilities of the Construction Manager and other parties.
- B. Div 01 - Project Coordination.

1.03 PROJECT - WORK COVERED BY ALL CONTRACT DOCUMENTS

- A. Work of the prime contracts comprises the Project, for the **Walter Sillers Fine Arts Center ReRoof.**
- B. The Contractor shall ensure continuous and uninterrupted access in and out of all existing buildings for the duration of the construction period.
- C. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings, as discussed at project meetings and/or as indicated by requirements of this Section.
- D. Use of Site: Limit use of Project site to work in areas indicated on Drawings or as defined by the Owner/Architect. Do not disturb portions of Project site beyond areas in which the Work is indicated.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 11 90
CONTRACT CONSIDERATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Schedule of values.
- C. Application for payment.
- D. Change procedures.

1.02 RELATED SECTIONS

- A. Section 01 60 00 - Material and Equipment: Product substitutions.

1.03 SCHEDULE OF VALUES

- A. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet.
- B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with the number and title of the major specification sections, bonds, and insurance.
- D. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- E. Include from each line item, a direct proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PAYMENT

- A. Submit five copies of each application on AIA Form G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: 30 days.

1.05 CHANGE PROCEDURES

- A. The Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by AIA A201, 1987 Edition, Paragraph 8.3 by issuing supplemental instructions on AIA Form G710.

- B. The Architect may issue a Proposal Request, which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change. Contractor will prepare and submit an estimate within five days.
- C. The Contractor may propose changes by submitting a request for change to the Architect, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.
- D. Stipulated Sum Change Order: Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Architect.
- E. Unit Price Change Order: For predetermined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work, which are not predetermined, execute Work under a Construction Change Directive. Changes in Contract Sum or Contract Time will be computed as specified for Time and Material Change Order.
- F. Construction Change Directive: Architect may issue a directive, on AIA Form G713 Construction Change Directive signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum or Contract Time. Promptly execute the change.
- G. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect will determine the change allowable in Contract Sum and Contract Time as provided in the Contract Documents.
- H. Change Order Forms: AIA G701 Change Order.
- I. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 11 90

SECTION 01 13 00 – ALTERNATES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope: This section describes the changes to be made under each alternate.
- B. General: The referenced Specification sections contain the pertinent requirements for materials and methods to achieve the work described herein. Coordinate related work and modify surrounding work, as required, to complete the Project under each alternate designated in the Contract.

1.2 DESCRIPTION OF ALTERNATES

- A. **ADD ALTERNATE #1: PATCH, GRIND, CLEAN, PREP, PRIME & PAINT EXISTING CONCRETE MECHANICAL SCREENS. (DO NOT PAINT THE MASONRY/TERRA COTTA BLOCKS). SEE 2/A21 FOR ADDITIONAL INFORMATION.**
- B. **ADD ALTERNATE #2: CLEAN, PREP AND INSTALL COATING ON 3 CONCRETE CANOPIES. SEE SHEET A10, A15 AND 4/A22 FOR ADDITIONAL INFORMATION.**
- C. **ADD ALTERNATE #3: PROVIDE & INSTALL NEW DRAIN GUARD AT EXISTING CONCRETE CANOPIES. SEE PLANS AND DETAIL 4/ A22 FOR ADDITIONAL INFORMATION.**

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

End of Section

SECTION 01 21 00

ALLOWANCES AND UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cash allowances.
- B. Testing and Inspection Allowances
- C. Unit Prices

1.02 RELATED SECTIONS

- A. Section 01 60 00 - Material and Equipment: Product substitutions.

1.03 CASH ALLOWANCES

- A. Costs Included in Cash Allowances: Cost of Product to Contractor or Subcontractor, less applicable trade discounts.
- B. Costs Not Included in Cash Allowances But Included in the Contract Sum/Price: Product delivery to site and handling at the site, including unloading, uncrating, and storage; protection of Products from elements and from damage; and labor for installation and finishing.
- C. Architect Responsibilities:
 - 1. Consult with Contractor for consideration and selection of Products and suppliers.
 - 2. Select Products in consultation with Owner and transmit decision to Contractor.
 - 3. Prepare Change Order.
- D. Contractor Responsibilities:
 - 1. Assist Architect in selection of Products and suppliers.
 - 2. Obtain proposals from suppliers and installers and offer recommendations.
 - 3. On notification of selection by Architect, execute purchase agreement with designated supplier.
 - 4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
 - 5. Promptly inspect Products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- E. Differences in costs will be adjusted by Change Order.
- F. Allowances Schedule:
 - 1. None to be included in bid.

1.04 TESTING ALLOWANCES

- A. Testing Allowances Schedule: None to be included in bid.

1.05 UNIT PRICES:

- A. None to be included in bid.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 21 00

SECTION 01 22 13

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Measurement and payment criteria applicable to portions of the Work performed under a unit price payment method.
- B. Defect assessment and non-payment for rejected work.

1.02 AUTHORITY

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Take all measurements and compute quantities. The Architect will verify measurements and quantities.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.03 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the individual specification sections are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Architect/Engineer determine payment.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.
- C. If the actual Work requires a 25% or greater change in quantity than those quantities indicated, the Owner or Contractor may claim for a Contract Price adjustment.

1.04 MEASUREMENT OF QUANTITIES

- A. Measurement Devices:
 - 1. Weigh Scales: Inspected, tested and certified by the Alabama Weights and Measures department within the past year.
 - 2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
 - 3. Metering Devices: Inspected, tested and certified by the applicable Alabama department within the past year.
- B. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- C. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- D. Measurement by Area: Measured by square dimension using mean length and width or radius.
- E. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

- F. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.05 PAYMENT

- A. Payment Includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.
- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Architect multiplied by the unit price for Work which is incorporated in or made necessary by the Work.

1.06 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Architect, it is not practical to remove and replace the Work, the Architect will direct one of the following remedies:
 - 1. The defective Work may remain, but the unit price will be adjusted to a new price at the discretion of the Architect.
 - 2. The defective Work will be partially repaired to the instructions of the Architect, and the unit price will be adjusted to a new sum/price at the discretion of the Architect/Engineer.
- C. The individual specification sections may modify these options or may identify a specific formula or percentage price reduction.
- D. The authority of the Architect to assess the defect and identify payment adjustment, is final.

1.07 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from the transporting vehicle.
 - 4. Products placed beyond the lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling and disposing of rejected Products.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.
 - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, List of Subcontracts, and Submittal Schedule.
- B. The Contractor's Construction Schedule and Submittal Schedule are included in Section "Submittals."

1.03 SCHEDULE OF VALUES

- A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
 - 1. Correlate Line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's Construction Schedule.
 - b. Application for Payment form.
 - c. List of Subcontractors.
 - d. List of Products.
 - 2. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 14 days before the date schedule for submittal of the initial Application for Payment.
- B. Format and Content: Use the Specification Index as a guide to establish the format for the Schedule of Values.
 - 1. Identification: Include the following Project Identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Project Number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:
 - a. Generic name.
 - b. Related Specification Section.
 - c. Change Orders (numbers) that have affected value.
 - d. Dollar Value.
 - i. Percentage of Contract Sum to the nearest one-hundredth percent, adjust to total 100 percent.

3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
4. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
5. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
6. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.
7. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.04 APPLICATIONS FOR PAYMENT:

- A. Each Application for payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: AIA G702.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
 2. Include amounts of Change Order and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit 5 executed copies of each application for Payment to the Architect by means ensuring receipt within 24 hours; one copy shall be complete, including waivers of lien and similar attachments when required.
 1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.
- F. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors or sub-contractors and suppliers for the construction period covered by the previous application.
 1. When an application shows completion of an item, submit final or full waivers.

2. The owner reserves the right to designate which entities involved in the Work must submit waivers.
 - a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of Work covered by the application who could lawfully be entitled to a lien.
 3. Waiver Forms: Submit waiver of lien on forms, and executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
1. List of Subcontractors
 2. List of principal suppliers and fabricators.
 3. Schedule of Values.
 4. Contractor's Construction Schedule.
 5. Submittal Schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. Copies of building permits.
 8. Copies of authorizations and licenses from governing authorities for performance of the Work.
 9. Initial progress report.
 10. Report of pre-construction meeting.
 11. Certificates of insurance and insurance policies.
 12. Performance and payment bonds.
 13. Data needed to acquire Owner's insurance.
- H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Administrative actions and submittals that shall proceed or coincide with this application include:
1. Occupancy permits and similar approvals.
 2. Warranties (guarantees) and maintenance agreements.
 3. Test / adjust / balance records.
 4. Maintenance instructions.
 5. Change-over information related to Owner's occupancy, use, operation and maintenance.
 6. Final cleaning Application for reduction of retainage, and consent of surety.
 7. Advice on shifting insurance coverages.
 8. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- J. Final payment application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
1. Completion of Project closeout requirements.
 2. Completion of specified for completion after Substantial Completion.
 3. Assurance that Work not complete and accepted will be completed without undue delay.
 4. Transmittal of required Project construction records to Owner.
 5. Proof that taxes, fees and similar obligations have been paid.
 6. Removal of temporary facilities and services.
 7. Change of door locks to Owner's access.

PART 2 – PRODUCTS (Not applicable).

PART 3 – EXECUTION (Not applicable).

END OF SECTION 01 29 76

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 DESCRIPTION

- A. Scope: To set forth procedures, conditions and responsibilities for coordination of the total Project.
- B. Project Coordinator: The Contractor will designate one individual as Project Coordinator or Superintendent. He will remain until the Project is completed and cannot be removed during construction without the consent of the Owner and the Architect. However, should the assigned Project Manager be undesirable in his management of the Project and if the Owner and Architect in mutual agreement show need for his removal, the Contractor will replace the individual with a different Project Manager within 30 days. This paragraph will remain in force for any and all project managers assigned to the job.

1.02 DUTIES OF THE PROJECT COORDINATOR

- A. General
 - 1. Coordination: Coordinate all work of all subcontractors and material suppliers.
 - 2. Supervision: Supervise the activities of every phase of the work-taking place on the Project.
 - 3. Mechanical/Electrical: Take special care to coordinate and supervise electrical work, including personnel.
 - 4. Communication: Establish lines of authority and communication at the Job Site.
 - 5. Permits: Assist in obtaining building and special permits required for construction.
 - 6. Location: The Project Coordinator must be present on the Site while all work is being performed.
- B. Interpretations of the Contract Documents
 - 1. Consultation: Consult with the Architect and Engineer to obtain interpretations.
 - 2. Assistance: Assist in the resolution of any questions.
 - 3. Transmission: Transmit written interpretations to concerned parties.
- C. Cessation of Work
 - 1. Stop all work in accordance with the requirements of the Contract Documents.
- D. Division One: Coordinate and assist in the preparation of all requirements of Division One and specifically as follows:
 - 1. Cutting and Patching: Supervise and control all cutting and patching of other trades' work.
 - 2. Project Meetings: Schedule and preside at all project meetings.
 - 3. Construction Schedules: Prepare and submit all construction schedules. Supervise work to monitor compliance with schedules. During progress of work revise and resubmit with Applications for Payment.
 - 4. Shop Drawings, Product Data, and Samples: Administer the processing of all submittals required by the Project Manual. Submit preliminary shop drawings, product data and samples in accordance with Section 01300 for review and compliance with Contract Documents, for field dimensions and clearances, for relation to available space, and for relation to related work. Revise and resubmit as required.

5. Schedule of Values: Assist in the preparation and be knowledgeable of each entry in the Schedule of Values.
6. Testing: Coordinate all required testing.
7. Temporary Facilities and Controls: Allocate, maintain and monitor all temporary facilities.
8. Substitutions and Product Options: Administer the processing of all substitutions.
9. Project Closeout: Conduct final inspections and assist in collection and preparation of closeout documents.
10. Cleaning: Direct and execute a continuing cleaning program throughout construction, requiring each trade to dispose of their debris.
11. Project Record Documents: Maintain up-to-date project record documents.
12. Enforce all safety requirements.

E. Changes

1. Recommend and assist in the preparation of requests to the Architect for any changes in the Contract Documents.

F. Application for Payment

1. Assist in the preparation and be knowledgeable of each entry in the Application and Certificate for Payment.
2. Submit applications for payment on AIA G702 forms for review, and for transmittal to Architect.

1.03 SUBCONTRACTOR'S DUTIES

- A. The Subcontractor is responsible to coordinate and supervise his employees in the work accomplished under his part of the Contract.
- B. Schedules
1. Conduct work to insure compliance with construction schedules.
- C. Suppliers
1. Transmit all instructions to suppliers.
- D. Cooperation
1. Cooperate with the Project Coordinator and other subcontractors.

1.04 CORRESPONDENCE AND COMMUNICATION

- A. Correspondence normal to the construction from the Contractor to the Owner shall be directed through the Architect. Any notice or demand upon the Owner shall not be deemed delivered without a copy of such notice or demand having been delivered to the Architect.
- B. All public information and/or news media releases concerning the work, as issued by or secured from the Contractor or his representative, should denote the names of the Architects, Owner and the Contractor in or on such media presentations, as a mandatory prerequisite for issuance of same.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION 01 31 00

SECTION 01 31 13
PROJECT COORDINATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.02 SUMMARY

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
 - 1. Coordination
 - 2. Administrative and supervisory personnel.
 - 3. General installation provisions.
 - 4. Cleaning and protection.
- B. Progress meetings, coordination meetings and pre-installation conferences are included in Section "Project Meetings."
- C. Requirements for the Contractor's Construction Schedule are included in Section "Submittals."

1.03 COORDINATION

- A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
 - 1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
 - 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
 - 3. Make adequate provisions to accommodate items schedule for later installation.
- B. As the project develops prepare memoranda for distribution to each party involved outlining special procedures required for coordination as necessary and as directed by Owner. Include such items as required notices, reports, attendance at meetings, etc. copies of all such reports should be provided for the Owner and Architect.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of schedules.
 - 2. Installation and removal of temporary facilities
 - 3. Delivery and processing of submittals.
 - 4. Progress Meetings.

5. Project Close-out activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
 1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated.

1.04 SUBMITTALS

- A. Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.
 1. Show the interrelationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. Comply with requirements contained in Section "Submittals."
 4. Refer to Division-15 Section "Basic Mechanical Requirements," and Division-16 Section "Basic Electrical Requirements" for specific coordination Drawing requirements for mechanical and electrical installations.
- B. Staff Names: Within 10 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and the telephone numbers.

PART 2 – PRODUCTS (Not Applicable).

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Require the installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and movement.
- E. Recheck measurements and dimensions, before starting each installation.
- F. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

- G. Mounting heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.02 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading.
 - 2. Excessive internal or external pressures.
 - 3. Excessively high or low temperatures.
 - 4. Thermal Shock.
 - 5. Excessively high or low humidity.
 - 6. Air Contamination or pollution.
 - 7. Water or ice.
 - 8. Solvents.
 - 9. Chemicals.
 - 10. Light.
 - 11. Radiation.
 - 12. Puncture.
 - 13. Abrasion.
 - 14. Heavy traffic.
 - 15. Soiling, staining and corrosion.
 - 16. Combustion.
 - 17. Electrical current.
 - 18. Unusual wear or other misuse.
 - 19. Contact between incompatible materials.
 - 20. Destructive testing.
 - 21. Misalignment.
 - 22. Excessive weathering.
 - 23. Unprotected storage.
 - 24. Improper shipping or handling.
 - 25. Theft.
 - 26. Vandalism.

END OF SECTION 01 31 13

SECTION 01 31 19
PROJECT MEETINGS

PART 1- GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.02 SUMMARY

- A. This section specifies administrative and procedural requirements for project meetings including but not limited to:
 - 1. Pre-Construction Conference.
 - 2. Pre-Installation Conferences.
 - 3. Coordination Meetings.
 - 4. Progress Meetings.
- B. Construction schedules are specified in another Division – 1 Section.

1.03 PRECONSTRUCTION CONFERENCE

- A. Schedule a pre-construction conference and organizational meeting at the Project Site or other convenient location no later than fifteen days after execution of the Agreement and prior to ordering materials or commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress including such topics as:
 - 1. Tentative construction schedule.
 - 2. Critical Work sequencing.
 - 3. Designation of responsible personnel.
 - 4. Procedures for processing field decisions and Change Orders.
 - 5. Procedures for processing Applications for Payments.
 - 6. Distribution of Contract Documents.
 - 7. Submittal of Shop Drawings, Product Data and Samples.
 - 7. Preparation of record documents.
 - 8. Use of the premises.
 - 9. Office, Work and storage areas.
 - 10. Equipment deliveries and priorities.
 - 11. Safety procedures
 - 12. First Aid
 - 13. Security.
 - 14. Housekeeping.

1.04 PRE-INSTALLATION CONFERENCES

- A. Conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect of scheduled meeting dates.
 - 1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
 - a. Contract Documents.
 - b. Options.
 - c. Related Change Order.
 - d. Purchases.
 - e. Deliveries.
 - f. Shop Drawings, Product Data and quality control Samples.
 - g. Possible conflicts.
 - h. Compatibility problems.
 - i. Time schedules.
 - j. Weather limitations.
 - k. Manufacturer's recommendations.
 - l. Compatibility of substrates.
 - m. Acceptability of substrates.
 - n. Temporary facilities.
 - o. Space and access limitations.
 - p. Governing regulations.
 - q. Safety.
 - r. Inspection and testing requirements.
 - s. Required performance results.
 - t. Recording requirements.
 - u. Protection.
 - 2. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.
 - 3. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.05 PROGRESS MEETINGS

- A. Conduct progress meetings at the Project Site at regularly scheduled intervals. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress

- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
 - 1. Review the present and future needs of each entity present, including such items as:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Deliveries.
 - e. Off-site fabrication problems.
 - f. Access.
 - g. Site Utilization.
 - h. Temporary facilities and services.
 - i. Hours of Work.
 - j. Hazards and risks.
 - k. Housekeeping.
 - l. Quality and work standards.
 - m. Change Orders.
 - n. Documentation of information for payment requests.
- D. Reporting: No later than 3 days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - 1. Schedule Updating: Review the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

END OF SECTION 01 31 19

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's construction schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Special reports.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.

- E. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- F. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file, where indicated.
 - 2. PDF electronic file.
 - 3. Eight paper copies.
- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- C. Construction Schedule Updating Reports: Submit with Applications for Payment.
- D. Site Condition Reports: Submit at time of discovery of differing conditions.
- E. Special Reports: Submit at time of unusual event.

1.5 QUALITY ASSURANCE

- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 01200 "Project Meetings." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
 - 1. Review software limitations and content and format for reports.
 - 2. Verify availability of qualified personnel needed to develop and update schedule.
 - 3. Discuss constraints, including work stages and interim milestones.
 - 4. Review delivery dates for Owner-furnished products.
 - 5. Review schedule for work of Owner's separate contracts.
 - 6. Review submittal requirements and procedures.
 - 7. Review time required for review of submittals and resubmittals.
 - 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 9. Review time required for Project closeout and Owner startup procedures.
 - 10. Review and finalize list of construction activities to be included in schedule.

11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from entities involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.
 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
 4. Startup and Testing Time: Include no fewer than 21 days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 6. Punch List and Final Completion: Include not more than 15 days for completion of punch list items and final completion.
- C. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
- D. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
 1. Unresolved issues.
 2. Unanswered Requests for Information.
 3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
 5. Pending modifications affecting the Work and Contract Time.

- E. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
- F. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
 - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
 - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
 - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Work by Owner that may affect or be affected by Contractor's activities.
 - i. Testing.
 - j. Punch list and final completion.
 - k. Activities occurring following final completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Main events of activity.
 4. Immediate preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the schedule of values).
- G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.
 4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.
 7. Changes in the Contract Time.

2.3 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
 2. Approximate count of personnel at Project site.
 3. Equipment at Project site.
 4. Material deliveries.
 5. High and low temperatures and general weather conditions, including presence of rain or snow.
 6. Accidents.
 7. Meetings and significant decisions.

8. Unusual events (see special reports).
 9. Stoppages, delays, shortages, and losses.
 10. Emergency procedures.
 11. Change Orders received and implemented.
 12. Construction Change Directives received and implemented.
 13. Services connected and disconnected.
 14. Equipment or system tests and startups.
 15. Partial completions and occupancies.
- B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within seven day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

SECTION 01 32 23
SURVEY AND LAYOUT DATA

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Survey and field engineering.
- B. Quality control.
- C. Submittals.
- D. Project record documents.

1.02 RELATED SECTIONS

- A. Information Available to Bidders: Owner's topographic survey.
- B. General Conditions: Basic site engineering requirements.
- C. Section 01019: Measurement for Work requiring unit price payment.
- D. Section 01700 - Contract Closeout: Project Record Documents.

1.03 QUALITY ASSURANCE

- A. Employ a Land Surveyor registered in the State of Mississippi and acceptable to Architect/Engineer, to perform survey work of this section.
- B. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.
- C. Employ a Professional Engineer or Land Surveyor of the discipline required for specific service on Project, licensed in the State of Mississippi.

1.04 SUBMITTALS FOR REVIEW

- A. Submit name, address, and telephone number of Surveyor/Engineer before starting survey work.
- B. On request, submit documentation verifying accuracy of survey work.
- C. Submit a copy of registered site drawing and a certificate signed by the Land Surveyor/Engineer, that the elevations and locations of the Work are in conformance with Contract Documents.

1.05 PROJECT RECORD DOCUMENTS

- A. Maintain a complete and accurate log of control and survey work as it progresses.
- B. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

- C. Submit Record Documents under provisions of Section 01 77 00.

1.06 EXAMINATION

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect/Engineer of any discrepancies discovered.

1.07 SURVEY REFERENCE POINTS

- A. Contractor to locate and protect survey control and reference points.
- B. Control datum for survey is that indicated on Drawings.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Architect/Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect/Engineer.

1.08 SURVEY REQUIREMENTS

- A. Provide field engineering services. Utilize recognized engineering survey practices.
- B. Establish a minimum of two permanent benchmarks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- C. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, and ground floor elevations.
- D. Periodically verify layouts by same means.

1.09 SURVEYS FOR MEASUREMENT AND PAYMENT

- A. Perform surveys to determine quantities of unit cost work, including control surveys to establish measurement reference lines. Notify Architect/Engineer prior to starting work.
- B. Contractor's Engineer Responsibilities: Sign surveyor's field notes or keep duplicate field notes, and calculate and certify quantities for payment purposes.

END OF SECTION 01 32 23

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUBMITTALS

- A. Submittals include shop drawings, design calculations, diagrams, illustrations, schedules, performance charts, nomenclature charts, samples, brochures and other data prepared by the Contractor or any subcontractor, manufacturer, supplier, fabricator, or distributor and which illustrate some portion of the Project.
- B. The Contractor shall understand that the submittal of the required documents does not constitute compliance with the requirements of the Contract Documents; only submittals reviewed by the Architect/ Structural Engineer constitute compliance.
- C. It is the Contractor's responsibility to furnish equipment, materials, and labor for the Project which meets the requirements of the codes and authorities quoted as well as the Contract Documents. Proprietary items specified herein only establish a minimum functional and aesthetic standard and it is incumbent upon the Contractor to ascertain conformance of these proprietary items or any proposed substitution with the codes and authorities.
- D. Contract Documents do not include shop drawings, vendor drawings, or any material prepared and submitted by the Contractor.

1.02 SUBMITTAL PROCEDURES

- A. Prior to the initial submittal, Contractor should transmit to the Architect/Engineer a completed "Submittal Information and Schedules" form given in Appendix I.
- B. Submittals shall be accompanied by transmittal letters, in duplicate, containing project name, Contractor's name, number of drawings, titles, and other pertinent data. Identify work and product by Specification Section.
- C. Provide required blank space on each submittal for the Contractor's and the Architect/Engineer's Stamps.
- D. Provide electronic submittal in addition to the required hard copies. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
- E. Individual Specification Sections establish type and quantity of submittals required.
- F. Contractor shall direct specific attention on the submittal to any deviation from the requirements of the Contract Documents.

1.03 SHOP DRAWINGS

- A. Present in a clear and thorough manner. Title each drawing with Project name and number; identify each element of drawing by reference to sheet number and detail of Contract Documents.

- B. Reproduction of Contract Drawings for shop drawings is not acceptable.
- C. Identify field dimensions; show relationship to adjacent or critical features of Work or products.
- D. A copy of the marked structural shop drawings with the Architect/Structural Engineer's review stamp is to be maintained at the job site.

1.04 PRODUCT DATA

- A. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capabilities; wiring and piping diagrams and controls; component parts; finishes; dimension; and required clearances.
- B. Modify manufacturer's standard schematic drawings, and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information which is not applicable.
- C. Provide manufacturer's preparation, assembly, and installation instructions.

1.05 PROPOSED PRODUCTS LIST

- A. Within 15 days after the date of the Owner-Contractor Agreement, submit a list of major products proposed for use, with names of manufacturers, trade names, and model numbers of each product.
- B. For products specified only by reference standards, give the manufacturer, trade name, model or catalog designation, and reference standards.

1.06 SAMPLES

- A. Submit the full range of manufacturers' standard finishes except where more restrictive requirements are specified, indicating colors, textures, and patterns.
- B. Submit samples to illustrate functional characteristics of products, including parts and attachments as required by Architect/Engineer.
- C. Approved samples which are of proper size may be incorporated in Work.
- D. Label each sample with identification.
- E. Field Finishes: Provide full samples at the Project, at a location acceptable to the Architect/Engineer, as required by individual Specification Section. Install each sample complete and finished. Acceptable finishes in place may be retained in compete work.

1.07 CONTRACTOR REVIEW

- A. Stamp and sign each sheet of shop drawings and product data, and sign or initialize each sample to certify compliance with requirements of Contract Documents.

- B. Work requiring shop drawings, whether called for by the Contract Documents or requested by the Contractor, shall not commence until the submission has been reviewed by the Architect/Engineer. Work shall be in accordance with and performed from the reviewed drawings and the Contractor shall make certain that proper shop drawings are at the site of the work.
- C. By reviewing, approving and submitting shop drawings, Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, member sizes catalog numbers, and similar data and that he has checked and coordinated shop drawings with the requirements of the Project and of the Contract Documents.

1.08 ARCHITECT/ENGINEER REVIEW

- A. Architect/Engineer will review submittals with reasonable promptness.
- B. Architect/Engineer's review and/or corrections refer only to the general arrangement and conformance of the subject of the submittals with the design concept of the project and with the information given in the Contract Documents. Under no conditions should the Contractor consider the review to include the dimensions, quantities, and details of the nor the approval of an assembly in which the item functions.
- C. Architect/Engineer's review of shop drawings shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract documents unless the Contractor has informed the Architect/Engineer in writing of such deviation at the time of submission and the Architect/Engineer has given written approval to the specific deviation; nor shall the Architect/Engineer's review relieve the Contractor from responsibility for errors or omissions from the shop drawing.

1.09 RE-SUBMITTALS

- A. When submittals are returned to the Contractor with the Architect/Engineer's corrections the Contractor shall make the required corrections. Upon request, resubmit one corrected set.
- B. Contractor shall direct specific attention on the re-submittals to all revisions including those requested by the Architect/Engineer on previous submission.

1.10 DISTRIBUTION

- A. Distribute reproductions of shop drawing, copies of product data, and samples which bear the Architect/Engineer's stamp of approval to job site file, Record Documents file, subcontractors, suppliers, other affected contractors, and other entities requiring the above information.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

APPENDIX I

SUBMITTAL INFORMATION & SCHEDULES

PROJECT _____

ADDRESS _____

CONTRACTOR _____

PROJECT MANAGER _____ PHONE NUMBER _____

PROJECT SUPERINTENDENT _____ PHONE NUMBER _____

MOBILIZATION DATE _____

PRE-CONSTRUCTION MEETING DATE _____

PROJECTED DATES FOR SUBMITTALS _____

END OF SECTION 01 33 00

SECTION 01 34 00

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. Submittal Exchange: A collaborative, secure online system for electronically exchanging, reviewing, and archiving construction submittals, RFIs, and other construction communications.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 10 days for review of each resubmittal.

4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 10 days for initial review of each submittal.

D. Electronic Submittal Procedures

1. Summary:
 - a. Shop drawing and product data submittals shall be transmitted to Architect in electronic (PDF) format using Submittal Exchange, a website service designed specifically for transmitting submittals between construction team members.
 - b. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
 - c. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
 2. Procedures:
 - a. Submittal Preparation - Contractor may use any or all of the following options:
 - 1) Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the Submittal Exchange website.
 - 2) Subcontractors and Suppliers provide paper submittals to General Contractor who electronically scans and converts to PDF format.
 - 3) Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.
 - b. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
 - c. Contractor shall transmit each submittal to Architect via email or through contractor's submittal management software. Architect is to be allowed to post reviewed submittals via email or digital file transfer web-based hosting software.
 - d. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
 3. Costs:
 - a. General Contractor shall include the full cost of Submittal Exchange project subscription in their proposal. This cost is included in the Contract Amount. Contact Submittal Exchange at 515-393-2245 to verify cost prior to bid.
 - b. At Contractor's option, training is available from Submittal Exchange regarding use of website and PDF submittals. Contact Submittal Exchange at 515-393-2245.
 - c. Internet Service and Equipment Requirements:
 - 1) Email address and Internet access at Contractor's main office.
 - 2) Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments.
- E. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

- F. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- G. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- H. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. All submittals will be processed using the on line services of Submittal Exchange.
 - 2. Electronic submittals will be uploaded to Submittal Exchange as PDF electronic files.
 - a. Architect will upload annotated files to Submittal Exchange for action by the Contractor.
 - b. Contractor to coordinate filing and assembly of project Close Out Documents using Submittal Exchange Protocols and filing retrieval methods.
 - c. Access permission, file interface and naming protocols using Submittal Exchange will be established in the Pre Construction Meeting.
 - 3. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.

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

3. For projects where electronic submittals are required, provide corresponding electronic submittal of sample transmittal, digital image file illustrating sample characteristics and identification information to be included as part of Record Documents.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples not designated as Owner's property are the property of Contractor.
- E. Coordination Drawing Submittals: Comply with requirements specified in Section 01041 "Project Coordination."
- F. Contractor's Construction Schedule: Comply with requirements specified in Section 01310 "Progress Schedules."
- G. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01025 "Schedule of Values" and Section 01027 "Applications for Payment."
- H. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01410 "Testing Laboratory Services."
- I. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01700 "Contract Closeout."
- J. Maintenance Data: Comply with requirements specified in Section 01730 "Operation and Maintenance Data."
- K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

- R. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- S. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- T. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- U. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- V. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

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

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01700 "Contract Closeout."

- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION

SECTION 01 41 00

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
 - 4. Specific test and inspection requirements are not specified in this Section.
 - 5. Costs for construction material testing (CMT) services will be the responsibility of the owner.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies. See drawing for requirements.
 2. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior mockups and room mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data : For Contractor's quality-control personnel.
- C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
 - 1. Project quality-control manager may also serve as Project superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
 3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and re-inspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.

- C. **Factory-Authorized Service Representative's Reports:** Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement that equipment complies with requirements.
 - 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 4. Statement whether conditions, products, and installation will affect warranty.
 - 5. Other required items indicated in individual Specification Sections.
- D. **Permits, Licenses, and Certificates:** For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE

- A. **General:** Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. **Specialists:** Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
- G. **Testing Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. **Manufacturer's Technical Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - 3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
 - 4. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 - 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 7. Demolish and remove mockups when directed unless otherwise indicated.
- L. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.
- M. Room Mockups: Construct room mockups within the 1st floor of one building at the earliest opportunity incorporating required materials and assemblies, finished according to

requirements. Provide required lighting and additional lighting where required to enable Architect to evaluate quality of the Work. Provide room mockups of the following rooms:

1. Standard double bedroom including bathroom and mechanical closet. Approved mock-up can become part of finished work.

1.10 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
 3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in 01340 "Shop Drawings, Product Data and Samples."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

- E. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
 - 1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01640 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

***** End of Section *****

SECTION 01 42 16

DEFINITIONS AND STANDARDS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.02 SUMMARY

- A. This Section specifies administrative requirements for compliance with governing regulations, codes and standards.
 - 1. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with regulations, codes and standards.
 - 2. Refer to General and Supplementary Conditions for requirements for compliance with governing regulations.

1.03 DEFINITIONS

- A. General: Definitions contained in this Article are not necessarily complete, but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.
- B. Indicated refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as “shown,” “noted,” “scheduled,” and “specified” are used, it is to help locate the reference, no limitation on location is intended except as specifically noted.
- C. Directed: Terms such as “directed,” “requested,” “authorized,” “selected,” “approved,” “required,” and “permitted” mean “directed by the Architect”, “requested by the Architect”, and similar phrases. However, no implied meaning shall be interpreted to extend the Architect’s responsibility into the Contractor’s area of construction supervision.
- D. Approve: The term “approved,” where used in conjunction with the Architect’s action on the contractor’s submittals, applications, and requests, is limited to the responsibilities and duties of the Architect stated in General and Supplementary Conditions. Such approval shall not release the Contractor from responsibility to fulfill Contract Document requirements, unless otherwise provided in the Contract Documents.
- E. Regulation: The Term “Regulations” includes laws, statutes, ordinances and lawful orders issued by authorities having jurisdiction, as well as rules, conventions and agreements within the construction industry that control performance of the Work, whether they are lawfully imposed by authorities having jurisdiction or not.
- F. Furnish: The term “Furnish” is used to mean “supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.”

- G. Install: The term “install” is used to describe operations at project site including the actual “unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations. Provide: The term “provide” means to furnish and install, complete and ready for the intended use.”
- H. Installer: An “Installer” is an entity engaged by the Contractor, either as an employee, subcontractor or sub-contractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
 - 1. The term “experienced,” when used with the term “Installer” means having a minimum of 5 previous Projects similar in size and scope to the Project and familiar with the precautions required, and has complied with requirements of the authority having jurisdiction.
- I. Project Site is the space available to the Contractor for performance of the Work, either exclusively or in conjunction with others performing other construction as part of the Project. The extent of the Project site is shown on the Drawings, and may or may not be identical with the description of the land upon which the Project is to be built.
- J. Testing Laboratories: a “testing laboratory” is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

1.04 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. This Article is provided to help the user of these Specifications understand the format, language, implied requirements, and similar conventions. None of the explanations shall be interpreted to modify the substance of Contract requirements.
- B. Specification Format: This Specification has been produced employing conventions in the use of language and the intended meaning of certain terms, word, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
 - 1. Language used in the Specifications and other Contract Documents is the abbreviated type. Implied works and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the full context of the Contract Documents so indicates.
 - 2. Imperative Language: is used generally in the Specifications. Requirements expressed imperatively are to be performed by the Contractor. At certain locations in the test, for clarity, subjective language is used to describe responsibilities, which must be fulfilled indirectly by the Contractor, or by others when so noted.
- C. Assignment of Specialists: The Specification requires that certain specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and the assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.
 - 1. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

2. Trades: Use of titles such as “carpentry” is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified above apply to tradespersons of the corresponding generic name.

1.05 DRAWING SYMBOLS

- A. Graphic symbols used on the Drawings are those recognized in the construction industry for purposes indicated. Where not otherwise noted, symbols are defined by “Architectural Graphic Standards”, published by John Wiley & Sons, Inc., seventh addition.
- B. Mechanical/Electrical Drawings: Graphic symbols used on mechanical and electrical Drawings are generally aligned with symbols recommended by ASHRAE. Where appropriate, they are supplemented by more specific symbols recommended by technical associations including ASME, ASPE, IEEE and similar organizations. Refer instances of uncertainty to the Architect for clarification before proceeding.

1.06 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into Contract Documents. Such standards are made a part of the Contract Documents by reference. Individual Sections indicate which codes and standards the Contractor must keep available at the Project Site for reference.
 1. Referenced Standards take precedence over standards that are not referenced by recognized in the construction industry as applicable.
 2. Unreferenced standards are not directly applicable to the Work, except as a general requirement of whether the Work complies with recognized construction industry standards.
- B. Publication Dates: Where compliance with an industry standard is required, comply with standard in effect as of date of Contract Documents.
 1. Updated Standards: At the request of the Architect, Contractor or authority having jurisdiction, submit a Change Order proposal where an applicable code or standard has been revised and reissued after the date of the Contract Documents and before performance of Work affected. The Architect will decide whether to issue a Change Order to proceed with the updated standard.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Architect for a decision before proceeding.
 1. Minimum Quantities or Quality Levels: In every instance the quantity or quality level shown or specified shall be the minimum to be provided or performed. The actual installation may comply exactly, within specified tolerances, with the minimum quantity or quality specified, or it may exceed that minimum within reasonable limits. In complying with these values, as noted, or appropriate for the context of the

requirements. Refer instances of uncertainty to the Architect for decision before proceeding.

- D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entities' construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
 - 2. Although copies of standards needed for enforcement of requirements may be part of required submittals, the Architect reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where acronyms or abbreviations are used in the Specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable to the contest of the test provision. Refer to the "encyclopedia of Associations, " published by Gale Research Co., available in most libraries.

1.07 GOVERNING REGULATIONS/AUTHORITIES

- A. The Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for the preparation of Contract Documents; that information may or may not be of significance to the Contractor. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.
- B. Trade Union Jurisdictions: The Contractor shall maintain, and require subcontractors to maintain, complete current information on jurisdictional matters, regulations and pending actions, as applicable to construction activities. The manner in which Contract Documents have been organized and subdivided is not intended to indicate any trade union or jurisdictional matters.
 - 1. Discuss new developments at Project meetings at the earliest feasible dates. Record relevant information and actions agreed upon.

1.08 SUBMITTALS

- A. Permits, licenses, and Certificates: for the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (Not applicable).

PART 3 – EXECUTION (Not applicable).

END OF SECTION 01 42 16

SECTION 01 43 00

QUALITY ASSURANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance - control of installation.
- B. Tolerances.
- C. References.
- D. Mockup.
- E. Inspecting and testing laboratory services.
- F. Manufacturers' field services and reports.

1.02 RELATED SECTIONS

- A. Section 01300 - Submittals: Submission of manufacturers' instructions and certificates.
- B. Section 01410 - Testing Laboratory Services.
- C. Section 01600 - Material and Equipment: Requirements for material and product quality.

1.03 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.04 TOLERANCES

- A. Monitor tolerance control of installed Products to produce acceptable Work. Do not permit tolerances to accumulate.

- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.05 REFERENCES

- A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. The contractual relationship, duties, and responsibilities of the parties in Contract nor those of the Architect/Engineer shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.06 MOCK-UP

- A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups are representative of the quality required for the Work.
- D. Where mock-up has been accepted by Architect/Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

1.07 INSPECTING AND TESTING LABORATORY SERVICES

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

1.08 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Architect/Engineer 30 days in advance of required observations.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

- D. Submit report in duplicate within 30 days of observation to Architect/Engineer for information.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 43 00

SECTION 01 50 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
- C. Construction Facilities: Access roads, parking, progress cleaning, project signage, and temporary buildings, and construction fencing.

1.02 RELATED SECTIONS

- A. Section 01700 - Contract Closeout: Final cleaning.

1.03 TEMPORARY ELECTRICITY

- A. Cost: By Contractor; provide and pay for power service required from utility source.
- B. Provide temporary electric feeder from existing building electrical service at location as directed. Do not disrupt Owner's need for continuous service.
- C. Complement existing power service capacity and characteristics as required.
- D. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.
- E. Provide main service disconnect and over-current protection at convenient location.
- F. Permanent convenience receptacles may be utilized during construction.
- G. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.04 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq. ft.
- B. Provide and maintain 1 watt/sq. ft lighting to exterior staging and storage areas after dark for security purposes.
- C. Provide and maintain 0.25 watt/sq. ft H.I.D. lighting to interior work areas after dark for security purposes.

- D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- E. Maintain lighting and provide routine repairs.
- F. Permanent building lighting may not be utilized during construction.

1.05 TEMPORARY HEAT

- A. [Contractor to supply](#) temporary heat devices as needed to maintain specified conditions for construction operations.
- B. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated, and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.
- C. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.06 TEMPORARY VENTILATION

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

1.07 TELEPHONE SERVICE

- A. Provide, maintain and pay for telephone service to field office at time of project mobilization.

1.08 FACSIMILE SERVICE

- A. Provide, maintain and pay for facsimile service and a dedicated telephone line to field office at time of project mobilization.

1.09 TEMPORARY WATER SERVICE

- A. Provide, maintain and pay for suitable quality water service required for construction operations.
- B. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

1.10 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted.

1.11 BARRIERS & SIGNS

- A. Provide barriers and warning signs to prevent unauthorized entry to construction areas to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing buildings.
- C. Provide protection for plant life designated to remain. Replace damaged plant life.
- D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.12 FENCING

- A. Contractor to provide design and materials of safe and secure construction fence to be submitted to Architect for review.
- B. Provide a fence around the General Construction site and the materials storage area, adequate in size and distance from the proposed work to allow work to continue unhindered and to protect the Public and the Site; equip with vehicular and pedestrian gates with locks.

1.13 EXTERIOR ENCLOSURES

- A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.14 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.15 SECURITY

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

1.16 ACCESS ROADS

- A. Provide and maintain access to fire hydrants, free of obstructions.
- B. Provide means of removing mud from vehicle wheels before entering streets.

1.17 CONSTRUCTION STORAGE AREA

- A. Provide security fencing as specified in 1.12 of this section.
- B. This area shall be accessible to vehicles from the street for delivery purposes.
- C. The transfer of equipment and materials to the construction site will be in accordance with 1.16 of this section.
- D. Upon construction completion, leave the storage area in its original condition.

1.18 PARKING

- A. Arrange for temporary surface parking areas to accommodate construction personnel.
 - a. **Not required for this project.**
- B. When site space is not adequate, provide additional off-site parking.

1.19 REPAIRS CAUSED BY CONSTRUCTION PROCEDURE

- A. Pavement, sidewalks, storm drainage system, utility lines, streets or curbs disturbed or damaged shall be replaced by the General Contractor at no additional cost to the Owner.
 - 1. Replaced work shall be carried out in a manner satisfactory to governing authorities and the Architect.

1.20 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.
- E. Open free-fall chutes not permitted. Terminate closed chutes into appropriate containers with lids.

1.21 PROJECT IDENTIFICATION

- A. Provide **ONE** 4-foot-wide x 8-foot-high project signs of exterior grade plywood and wood frame construction, painted, with exhibit lettering by professional sign painter to Architect's design and colors. (See contact person below.)
- B. List title of Project, names of Owner, Architect, professional sub-consultants, & Contractor. For complete lay out and color scheme of Project Sign, **contact Shafer-Zahner-Zahner, PLLC, 510 University Drive, Starkville, MS 39759, tel (662) 323-1628.**
- C. Erect on site at locations established by Architect.
- D. No other signs are allowed except those required by law.

1.22 FIELD OFFICES AND SHEDS

- A. Office: Weather tight, with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture drawing rack, and drawing display table.
- B. Locate offices and sheds a minimum distance of 30 feet from existing and new structures.

1.23 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION 01 50 00

SECTION 01 56 26

JOB SITE FENCING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Security fencing to enclose the job site, lay-out area(s), staging area(s) and protect the pedestrians and owner's employees.

1.02 SUBMITTALS

- A. Shop Drawings: Submit under provisions of Section 01300. Indicate layout of the work, affected adjacent construction and anchorage locations.
- B. Product Data: Provide recommended locations and means of anchorage.

1.03 FIELD MEASUREMENTS

- A. Verify that fence layout meets the Owner's requirements. Receive approval for exact layout from owner before final assembly.
- B. Overall layout dimensions to enclose the job site (limit of work) as necessary. See Site Plan. Allow for the proposed work to continue unhindered.

PART 2 PRODUCTS

2.01 REQUIREMENTS

In general, the construction site will be enclosed by 8' tall, Post-weave hot-dipped galvanized chain link fabric, 2" (max.) mesh size, line posts 1.9" min. diameter, top rails 1-5/8" min. diameter. Post spacing is to be in accordance with manufacturer's instructions and as necessary to properly support the. Include end clamps, post caps, hinges, pipe sleeves and other accessories as required to complete installation. Provide anchorage that will not damage any existing materials/surfaces (provide metal shoes at posts on pavement that is to remain). Install a privacy screen of green vinyl coated polyester, full height with seamed reinforcement hems and grommets (24" on center) at all edges. Privacy screen shall be equal to U.S. Fence's privacy netting. The fence location and access gate(s) are to be installed as shown on the site diagram or as directed by the Owner or Professional. See related sections for all additional requirements. At job completion remove and repair any materials/surfaces as required.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install components and accessories in accordance with Owner's instructions and requirements. Align work plumb and level as to have a neat and clean appearance for the duration of the project.
- B. Keep fencelines clean of vegetation and debris during the duration of the project.

END OF SECTION
01 56 26

SECTION 01 60 00
MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.02 RELATED SECTIONS

- A. Section 01400 - Quality Control: Product quality monitoring.

1.03 PRODUCTS

- A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- B. Provide interchangeable components of the same manufacture, for components being replaced.

1.04 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.05 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturers' instructions, with seals and labels intact and legible.
- B. Store sensitive Products in weather tight, climate-controlled enclosures.
- C. For exterior storage of fabricated Products, place on sloped supports, above ground.
- D. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

- E. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of Product.
- F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- G. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- H. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

1.06 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description may be used.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.07 SUBSTITUTIONS

- A. Requests for substitutions during the bidding period will be considered no later than **five** days prior to the bid opening.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Bidder:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the Substitution as for the specified Product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will reimburse Owner and Architect/Engineer for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:

1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
3. The Architect/Engineer will notify Bidders in writing of decision to accept or reject request.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 61 00

PRODUCT HANDLING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to the work of all technical sections.

1.02 DEFINITION

- A. Product Handling shall mean the complete process of Delivery, Handling, Unloading, and Storage of all Materials, including equipment, tools, and supplies shipped to the Project Site.

1.03 DELIVERY

- A. Deliver materials, supplies, or equipment to Project Site during working hours.
- B. Deliveries made during other than normal working hours must be received by an authorized agent of Contractor involved or be received by other means which shall be the sole responsibility of that Contractor.
- C. No employee of the Owner is authorized to receive any shipment designated for this Project.
- D. The Owner assumes no responsibility for receiving any Shipments designated for this Project.
- E. Any materials delivered in the presence of Owner's Representative shall be accounted for by the respective Contractor.
- F. Under no circumstances may shipments be directed to, or in care of, the Owner.
- G. Each Contractor, Subcontractor, manufacturer or supplier furnishing materials to the site, shall identify, ship, address, consign, etc., all such materials to the Contractor who may be charged therewith by giving the name of the Contractor, the name and address of the Project.

1.04 HANDLING AND UNLOADING

- A. Immediately upon delivery, the Contractor shall check for any damage to materials that occurred prior to, or during Shipment. Damaged material shall be replaced or repaired to a "like-new" condition and must be approved and/or acceptable by the Owner, and/or the Architect.
- B. Handling and/or unloading shall be performed so as to not cause any damage to materials permanently incorporated in the Work.
- C. Unload materials only where it will not interfere with other Contractor's operations.

1.05 STORAGE

- A. Each Contractor shall provide suitable storage facilities at the site for the proper protection and safe storage of his materials.
- B. Confine storage at the site to areas permitted by laws, ordinances, permits, and the Contract Documents. Do not unreasonably encumber the site with materials and equipment.
- C. Contractor shall obtain and pay for use of any additional storage or work areas that he requires for the satisfactory performance of his work.
- D. Contractor shall be cautious and not load the structure with weight that might cause damage or endanger the structure.
- E. Contractor shall remove or relocate stored materials that encumber other Contractor's Work or the Owner's operations.
- F. When any room is used as a shop, storeroom, etc., by the various Contractors during the construction of the building, the Contractors making use of these spaces will be held responsible for any repairs, patching, or cleaning arising from such use.

END OF SECTION 01 61 00

SECTION 01 63 00

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope: To set forth the procedure and conditions for substitutions and to give the product options available to the Contractor.

1.2 PRODUCTS LIST

- A. Within thirty (30) days after the Contract has been signed, the Contractor will submit to the Professional five (5) copies of a complete list of all products proposed for installation.
- B. Tabulate the list by Specification sections.
- C. For products specified under reference standards, include with listing of each product:
 - 1. Name and address of Manufacturer.
 - 2. Trade name.
 - 3. Model, or catalog designation.
 - 4. Manufacturer's data.
 - 5. Performance and test data.
 - 6. Reference standards.

1.3 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards, select any product meeting product standards by any Manufacturer.
- B. For products specified by naming a minimum of three (3) products or Manufacturers, select any product and Manufacturer named.
- C. For product specified by naming one (1) or more products, but indicating the option of selecting equivalent products by stating "or equal" after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.
- D. For products specified by naming only one (1) product and Manufacturer, an equivalent product will always be accepted if it is equal in all respects. The Contractor must submit a request for substitution as set forth in this Section.
- E. For products specified by naming only one (1) product and Manufacturer and stating no substitutions will be accepted, there is no option and no substitutions will be allowed. This option must have written approval by the Owner before bidding.

1.4 SUBSTITUTIONS

- A. Professional will not consider requests for substitutions during bidding.

- B. Within thirty (30) days after the Contract has been signed, the Professional will consider formal requests from the Contractor for substitution of products in place of those specified. Submit five (5) copies of the request for substitutions. Include in the request:
1. Complete data substantiating compliance of proposed substitutions with Contract Documents.
 2. For products:
 - a. Product identification including Manufacturer's name and address.
 - b. Manufacturer's literature: Product description, performance and test data and reference standards.
 - c. Samples.
 - d. Name and address of similar products on which product was used and date of installation.
 3. For construction methods:
 - a. Detailed description of proposed method.
 - b. Drawings illustrating methods.
 4. Itemized comparison of proposed substitutions with product or method specified.
 5. Data relating to changes in construction schedule.
 6. Accurate cost data on proposed substitution in comparison with product or method specified.
- C. In making request for substitution, Contractor represents:
1. Proposed product, or method, has been investigated and determined that it is equal or superior in all respects to that specified.
 2. The same guarantee will be provided for substitutions as for product or method specified.
 3. Installation of accepted substitutions will be coordinated into the Work, making such changes required of work to be complete in all respects.
 4. All claims for additional costs related to substitution which consequently become apparent will be waived.
 5. Cost data is complete and includes all related costs under the Contract.
- D. Substitutions will not be considered if:
1. Indicated, or implied, on shop drawings or product data submittals without formal request submitted in accordance with this Section.
 2. Acceptance will require substantial revision of Contract Documents.
 3. In the Professional's judgment, the product, or material, is not equal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

***** End of Section *****

SECTION 01 63 50

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product

request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

- a. Form of Approval: As specified in Section 01340 "Shop Drawings, Products Data and Samples."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01340 "Shop Drawings, Products Data and Samples." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
- 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
- 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
- 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 6. Protect stored products from damage and liquids from freezing.
 - 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 01700 "Contract Closeouts."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 4. Where products are accompanied by the term "as selected," Architect will make selection.
 - 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 - 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
 - 1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.

Comparable products or substitutions for Contractor's convenience will not be considered.

3. Products:

- a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
- b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

- a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
- b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

- 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01630 "Substitution and Product Options" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

***** End of Section *****

SECTION 01 64 00

EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Coordination of Owner-installed products.
 - 5. Protection of installed construction.
 - 6. Correction of the Work.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.

2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the 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.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01041 "Project Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 2. Establish limits on use of Project site.
 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 4. Inform installers of lines and levels to which they must comply.
 5. Check the location, level and plumb, of every major element as the Work progresses.
 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the 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 the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the 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.
- H. 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 size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.

3. Coordinate 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 Project site in time for installation.

- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

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

***** End of Section *****

SECTION 01 65 00

STARTING OF SYSTEMS

PART 1 - GENERAL

1.1 GENERAL

- A. Scope: This Section describes the procedures for start up of all building equipment and systems including necessary demonstration and instructions.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. Demonstration and training video recordings.

1.3 STARTING SYSTEMS

- A. Coordinate Schedule for start-up of various equipment and systems.
- B. Notify Professional and Owner seven (7) days prior to start-up of each system.
- C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
- D. Verify that tests, meter readings and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of responsible Contractors' personnel in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require Manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

1.4 DEMONSTRATION AND INSTRUCTIONS

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

- B. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shut- down of each item of equipment at agreed-upon times, at designated location.
- D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.5 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For instructor.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.6 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Date of video recording.
 - 2. Transcript: Prepared and bound in format matching operation and maintenance manuals. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video recording. Include name of Project and date of video recording on each page.
 - 3. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
 - 4. At completion of training, submit complete training manual(s) for Owner's use prepared and bound in format matching operation and maintenance manuals and in PDF electronic file format on compact disc.

1.7 QUALITY ASSURANCE

- A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- B. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.
- C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 - 1. Inspect and discuss locations and other facilities required for instruction.
 - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 - 3. Review required content of instruction.
 - 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.8 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.

- f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
- 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project record documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
- 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
- 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.

- c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 2. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through Architect, with at least seven days advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.
- F. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.3 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Video: Provide minimum 640 x 480 video resolution converted to format file type acceptable to Owner, on electronic media.
 - 1. Electronic Media: Read-only format compact disc acceptable to Owner, with commercial-grade graphic label.
 - 2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.
 - 3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.
 - 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project table of contents:
 - a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. E-mail address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
 - 1. Film training session(s) in segments not to exceed 15 minutes.
 - a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
 - 1. Furnish additional portable lighting as required.
- E. Narration: Describe scenes on video recording by audio narration by microphone while or dubbing audio narration off-site after video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

End of Section

SECTION 01 72 00

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
 - 5. Final Asbuilt Survey

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of record Drawings as follows:
 - a. Final Submittal:
 - 1) Submit PDF electronic files of scanned record prints and two sets of prints.
 - 2) Print each drawing whether or not changes and additional information were recorded.
- B. Record Specifications: Submit two paper copies and one annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit two paper copies and one annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit two paper copies and one annotated PDF electronic files and directories of each submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated PDF electronic file with comment function enabled.
 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.

3. Refer instances of uncertainty to Architect for resolution.
 4. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 01340 "Shop Drawings, Product Data & Samples" for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 5. Note related Change Orders and record Drawings where applicable.
- B. Format: Submit record Specifications as scanned PDF electronic file(s) of marked-up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product as scanned PDF electronic file(s) of marked-up paper copy of Product Data.
1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as scanned PDF electronic file(s) of marked-up miscellaneous record submittals.
1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

2.5 FINAL ASBUILT SURVEY BY THE CONTRACTOR

- A. The Contractor shall provide a final asbuilt survey using GIS and State Plan Coordinates in AutoCAD format. This survey must include all elements/features shown on the construction documents, any changes made during construction, plus any additional items discovered during construction.
- B. Projected Coordinate System: State Plane Coordinate System, Mississippi East FIPS 2301, Linear units in Feet, North American Datum 1983.
- C. Geographic Coordinate System: GCS_North_American_1983
Datum: D_North_American_1983
Prime Meridian: Greenwich
Angular Unit: Degree
Accuracy: Certified within 6"

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean,

dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

***** End of Section *****

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. All cutting and patching work is to be coordinated with Owner.
- C. Refer to other sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
 - 1. Requirements of this Section apply to mechanical and electrical installations. Refer to Division– 15 and Division – 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.
- D. Demolition of selected portions of the existing building for alterations is included in Section “Selective Demolition.”

1.03 SUBMITTALS

- A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit to the Architect and the Owner's representative a proposal describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal.
 - 1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
 - 2. List products to be used and firms or entities that will perform work.
 - 3. Indicate dates when cutting and patching is to be performed.
 - 4. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
 - 5. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations to show how reinforcement is integrated with the original structure.
 - 6. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.
- B. Shop Drawings and Report for Warranted Systems; Where cutting and patching work is required in an existing warranted system, such as the roof, provide shop drawings indicating how the Work complies with the manufacturer's requirements for the reworking of the system. These shop drawings are to be approved by the manufacturer and the Architect prior to any alterations or Work being performed on the existing warranted system. Where inspections by the system manufacturer's representative is required to maintain warranty requirements, submit copies of all

reports and correspondence submitted by the manufacturer to the Architect and a copy directly to the Owner.

1.04 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
 - 1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:
 - a. Foundation construction.
 - b. Bearing walls.
 - c. Structural concrete.
 - d. Structural steel.
 - e. Structural decking.
 - f. Stair systems.
 - g. Miscellaneous structural metals.
 - h. Equipment supports.
 - i. Piping, ductwork, vessels and equipment.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
 - 1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
 - a. Primary operational systems and equipment.
 - b. Air or smoke barriers.
 - c. Water, moisture, or vapor barriers.
 - d. Membranes and flashings.
 - e. Fire protection systems.
 - f. Noise and vibration control elements and systems.
 - g. Control systems.
 - h. Communication systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
- D. Manufacturer's Warranties: Where cutting and patching work involves the reworking of an existing warranted system, such as the roof, the Work shall be done in a manner consistent with the manufacturer's requirements for maintaining the existing warrant. The contractor or subcontractor performing the work shall be acceptable to the manufacturer under the manufacturer's installer licensing program. Provide written verification that the manufacturer has approved the work and that the warranty remains unaffected. Assist the Owner securing any warranty documentation they require for their records.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Use material that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.
 - 1. Before proceeding meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but schedule to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
 - 1. Cut existing construction to provide for the installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
 - 1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.

4. Comply with requirements of applicable Sections of Division – 2 where cutting and patching requires excavating and backfilling.
 5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
- D. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
- E. Restore exposed finishes of patched areas and extend finish restoration into retained and adjoining construction in a manner that will eliminate evidence of patching and refinishing.
- F. Where removal of walls or partitions extends one finished area into another, patch and repair floor, wall and ceiling surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.
1. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken area containing the patch, after the patched area has received primer and second coat.
- G. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.04 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01 73 29

SECTION 01 74 00

CLEANING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to the work of all technical sections.

1.02 DESCRIPTION OF WORK

- A. Work includes but is not limited to, following:
 - 1. Cleaning Equipment
 - 2. Cleaning
 - 3. Removal of Temporary Protection
 - 4. Final Cleaning

1.03 SPECIAL INSTRUCTIONS

- A. Upon completion of work in each area or part of the building and prior to occupancy, that area shall be thoroughly cleaned and made ready immediately by the respective trades involved in the work being done.

1.04 EQUIPMENT

- A. For final cleaning operations, use approved apparatus and cleaning materials.
- B. Clean manufactured articles in strict accordance with manufacturer's directions.

1.05 CLEANING

- A. Keep building and site free from accumulation of dirt, debris and excess materials. Remove oily rags and waste from premises at close of each day, or more often if required.
- B. Clean areas prior to painting. Take care to settle and minimize dust before painting begins. Use commercial type vacuum cleaners.

1.06 REMOVAL OF TEMPORARY PROTECTION

- A. Upon completion of work in each area or part of building, remove temporary protection and make good defects in materials and workmanship noted after removal of such temporary protection.

1.07 FINAL CLEANING

- A. Exterior walks, steps and platforms shall be broom-cleaned, dust dirt, stains and other disfiguration removed from exterior surfaces in approved manner.
- B. Upon completion of final cleaning, cleaning equipment, materials and debris shall be removed from building and premises left clean and tidy to Architect's satisfaction.

END OF SECTION 01 74 00

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Warranties.
- G. Spare parts and maintenance materials.

1.02 RELATED SECTIONS

- A. Section 01 50 00 - Temporary Facilities and Temporary Controls: Progress cleaning.

1.03 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect's review.
- B. Architects will provide one "punch- list" inspection and one final inspection. Prior to final inspection the Contractor shall provide a letter stating that all punch-list items have been completed and are ready for final inspection. Final inspection will not be granted until all punch-list items are completed. The Architects will be reimbursed (by the General Contractor) for time and travel (at \$115/hr) for any additional inspections due to incomplete or unacceptable punch-list items.
- C. Provide submittals to Architect that are required by governing or other authorities.
- D. Contractor to provide certification of **non**-use of Asbestos Containing Materials.
- E. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- D. Owner will occupy all portions of the building as specified in Section 01011.

1.04 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.

- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- D. Replace filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.05 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.06 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 2. Field changes of dimension and detail.
 - 3. Details not on original Contract drawings.
- G. Remove Architect title block and seal from all documents.
- H. Submit documents to Architect with claim for Final Application for Payment.

1.07 OPERATION AND MAINTENANCE DATA

- A. Submit data bound in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
- C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 24-pound white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties and bonds.
- E. Submit 1 draft copy of completed volumes 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of all document sets as required prior to final submission.
- F. Submit two sets of revised final volumes, within 10 days after final inspection.

1.08 WARRANTIES AND GUARANTEES

- A. Provide duplicate notarized copies.
- B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

- F. Along with the final application for payment the contractor shall submit a letter stating that no asbestos or materials containing asbestos have been used in the project. Final payment will not be approved without this document. Failure to comply with this order will result in any material containing asbestos being removed at the Contractor's expense.

1.09 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 77 00

SECTION 01 78 30

WARRANTIES AND BONDS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and/or Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
 - 1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
 - 2. General closeout requirements are included in Section "Project Closeout."
 - 3. Specific requirements for warranties for the Work and products and installations that are specified to the warranted, are included in the individual Sections of Divisions-2 through – 16.
 - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
 - 5. All special required warranties are to be signed by the General Contractor and appropriate subcontractors, suppliers and manufacturers.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.03 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. Reinstatements of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Contractor benefited from use of the Work through a portion of its anticipated service life.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to any implied warranties, and shall not limit the duties, obligations, rights or remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce sudden duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject work and limit selections to products with warranties not in conflict with the requirements of the Contract Documents.
- E. The Owner reserves the right to refuse to accept Work for the project. Special warranty, certification, or similar commitment is required on such or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.04 SUBMITTALS

- A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of Architect.
 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.
- B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.
 1. Refer to individual Sections of Divisions –2 through – 16 for specific content requirements, and particular requirements for submittal of special warranties.
- C. Form of Submittal: At Final Completion compile two copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.
 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES AND BONDS, the Project title or name, and the name of the Contractor.
- E. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

- A. Refer to the individual specification section for specific warranty requirements.

END OF SECTION 01 78 30



SECTION 01 8000

SPECIAL CONDITIONS

1. The Contractor is required to enter into a Utility Agreement with MVSU for utilities used during the construction period. A letter from MVSU will be provided to the contractors allowing free usage of All utilities during the project.
2. The Contractor shall maintain the secure fence around the construction area and remove rubbish on a regular basis to keep the project site clean.
3. All parking and material delivery and storage shall be kept inside the construction fence unless approved by the Department of Facilities Management and/or The Bureau of Buildings and Grounds
4. The University will not be responsible for the safety of the Contractor's work, materials, or equipment. Protection of the property within the contract work area both day and night shall be the responsibility of the contractor. The Contractor shall provide a chain and lock for their security gate that can be "double locked" with a University furnished lock so that the University can have access to the job site during emergencies.
5. Any workman who may, because of improper conduct, become objectionable will be promptly removed by the Contractor at the request of the proper University officials.
 1. No firearms of any kind are allowed on the campus.
 2. The possession or consumption of alcoholic beverages is forbidden on campus.
 3. The use of tobacco products is prohibited in buildings.
 4. Shirts and pants will be always worn by all workers with no vulgar or insensitive images or language printed on apparel.
 5. Use of offensive language or gestures to any student, faculty, or staff member is improper conduct.
6. For any emergencies or security issues, contact the MVSU Campus Police at (662-254-3478 or 662-254-3479).
7. The Department of Facilities Management has a list of contacts that can be utilized during the construction period in coordination with MVSU.

FACILITIES MANAGEMENT

SECTION 02070

SELECTIVE DEMOLITION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This section requires the selective removal and subsequent offsite disposal of the following:
 - 1. Portions of existing building indicated on drawings and/or as required to accommodate new construction.
 - 2. Removal and protection of existing fixtures, materials, and equipment items indicated, intended to be reused and/or as directed by the Owner.

1.03. SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
 - 1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - 2. As necessary coordinate with Owner's continuing occupation of portions of existing building and with Owner's partial occupancy of completed new addition.

1.04 JOB CONDITIONS

- A. Occupancy: Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations on adjacent portions of the property. Provide minimum advance notice as required by Owner to Owner of demolition activities which will severely impact owner's normal operations. Any work that will have an effect on the operations of the Owner must be coordinated with and approved by the Owner prior to being scheduled.
- B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.
 - 1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

- C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Owner may be removed from structure as work progresses. Transport salvaged items from site as they are removed.
 - 1. Storage or sale of removed items on site will not be permitted.
- D. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.
 - 1. If required provide protective measures as required, and in a manner, form acceptable to the Owner, to provide free and safe passage of Owner's personnel and general public to and from occupied portions of the building.
 - 2. Erect temporary covered passageways as required by authorities having jurisdiction.
 - 3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.
 - 4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
 - 5. Protect floors with suitable coverings when necessary.
 - 6. Construct temporary insulated dustproof partitions where indicated or as required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks.
 - 7. Provide temporary weather protections during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
 - 8. Remove protections at completion of work.
- E. Damages: Promptly repair damages caused to adjacent facilities by demolition work.
- F. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, drives, walks, and other adjacent occupied or used facilities. Coordinate all of these activities with the Owner.
 - 1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- G. Flame Cutting: Any work involving an open flame must first be coordinated and approved with the Owner. Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- H. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
 - 1. Do not interrupt utilities serving occupied or used facilities, except, when authorized in writing by the owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
 - 2. Maintain fire protection services during selective demolition operations.

- I. Environmental controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
 - 1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution or when it would damage materials (or portions of the building) that are to remain

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.01 PREPARATION

- A. General: Provide interior and shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.
 - 1. Cease operations and notify Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
- B. Cover and protect furniture, equipment, and fixtures that are to remain from soilage or damage when demolition work is performed in areas where such items have not been removed.
 - 1. Provide weatherproof closures for exterior openings resulting from demolition work.
- C. Erect and maintain dustproof partitions and closures to prevent spread of dust or fumes to occupied portions of the building.
 - 1. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dustproof partitions of minimum 4" studs, 5/8" drywall (joints taped) on occupied side, 1/2" fire-retardant plywood on demolition side, and fill partition cavity with sound deadening insulation.
 - 2. Provide weatherproof closures for exterior openings resulting from demolition work.
- D. Locate, identify, stub off, and disconnect utility services that are not indicated to remain. Perform this work in accordance with accepted standards and in a manner acceptable to the owner.
 - 1. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shut down of service is necessary during changeover.

3.02 DEMOLITION

- A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
 3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
 4. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
 5. Completely fill below-grade areas and voids resulting from demolition work. Provide fill consisting of approved earth, gravel, or sand, free of trash and debris, stones over 6 inches in diameter, roots, or other organic material.
- B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.03 SALVAGED MATERIALS

- A. Salvaged Items: Where items are indicated on Drawings, or requested by Owner, to be salvaged and returned to the Owner, carefully remove items, clean, store, and store on site as directed by Owner.
1. Historic artifacts, including cornerstones and their contents, commemorative plaques and tablets, antiques, and other articles of historic significance, remain property of Owner. Notify Owner's Representative of such items are encountered and obtain acceptance regarding method of removal and salvage for Owner.
 2. Carefully remove, clean, and deliver to Owner the items indicated on the drawings.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.
1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
 2. Burning of removed materials is not permitted on project site.

3.05 CLEANUP AND REPAIR

- A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 02070

SECTION 02072

MINOR DEMOLITION FOR REMODELING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal of designated construction as indicated on the Drawings and as required to complete the new construction.
- B. Removal and appropriate disposal of all debris.
- C. Protection of existing construction to remain.

1.02 RELATED SECTIONS

- A. Summary of Work
- B. Project Coordination
- C. Temporary Facilities and Controls
- D. Cleaning
- E. Project Record Documents

1.03 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Division 1
- B. Accurately record actual locations of capped utilities, subsurface obstructions, and appurtenances.

1.04 REGULATORY REQUIREMENTS

- A. Conform to applicable code for demolition work, safety of structure, and dust control.
- B. Obtain building permits as required on this project.
- C. Notify affected utility companies before starting work and comply with their requirements.
- D. Do not close or obstruct egress width to exits.
- E. Do not disable or disrupt building fire or life safety systems without 3 day prior written notice to the Owner and Architect.
- F. Cease operations and notify Architect immediately upon the discovery of hazardous or contaminated materials.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 PREPARATION

- A. Prior to all work of this Section, carefully inspect the entire site and all elements designated to be removed. Protect existing materials and site improvements which are not to be demolished.
- B. Clarification
 - 1. The Drawings are based on information provided by others and site observations by the Architect and do not purport to show all existing conditions required to be removed.
 - 2. Verify with the Architect any item or area in question of being removed or demolished.
- C. If torches or open flame is used for any purpose, provide a tested fire extinguisher at all times.
- D. Erect and maintain temporary partitions to prevent spread of dust, odors and noise to permit continued Owner occupancy.
- E. Provide, erect, and maintain temporary barriers and insulated partitions at all necessary locations. See drawings for any specific locations.
- F. Mark location of utilities.

3.02 DEMOLITION REQUIREMENTS

- A. Conduct demolition to minimize interference with adjacent an occupied building or site areas.
- B. Cease operations immediately if structure appears to be in danger. Notify Architect/Engineer. Do not resume operations until directed.
- C. Maintain protected egress and access to the Work.

3.03 DEMOLITION

- A. Undertake demolition in an orderly and careful manner. Protect existing construction and supporting structural members.
- B. Except where noted otherwise, remove demolished materials from site and dispose of properly. Do not burn or bury materials on site.
- C. Remove demolished materials from site as work progresses. Upon completion of work, leave areas in clean condition.
- D. Remove temporary work.

END OF SECTION 02072

SECTION 02075

CONSTRUCTION SAFEGUARDS

PART 1 - GENERAL

1.1. SCOPE OF WORK

- A. Preparation of the construction site and adjacent areas to protect construction, site, the public, etc. from construction activities.

1.2. PRE-INSTALLATION CONFERENCE

- A. Refer to Project Meeting Division 0 and Division 1 sections for additional requirements. At a minimum, coordinate meetings with the Owner and the Authorities Having Jurisdiction (AHJ) to verify the level of protections required based on the specific site conditions and the code requirements.
- B. Review installation procedures, locations and coordination required with the owner and Authorities Having Jurisdiction prior to any demolition or construction activities.

1.3. SCHEDULING

- A. Schedule work to coincide with commencement of demolition and construction activities and as required by the Owner and Authorities Having Jurisdiction (AHJ's) based on the Owner's scheduling requirements.

PART 2 - EXECUTION

2.1 CONSTRUCTION SAFEGUARDS

Construction safeguards: all construction safety, site protection, protection of the public and employees, protection of existing construction and adjacent construction, adherence to O.S.H.A. all applicable codes, etc. Are solely the responsibility of the contractor. This note is not a complete listing of all construction safeguards that the contractor is responsible for. The contractor is responsible for being familiar with all requirements from all governing authorities and abiding by all requirements.

References:

international existing building code (IEBC) current addition
International building code, current addition
International fire code (IFC), chapter 33

Some of the requirement listed in the above referenced codes are listed below. However, the contractor responsibility to be aware of and adhere to all applicable codes, ordinances and regulations. Additionally, the contractor must abide by all local requirements and the authority having jurisdiction (A.H.J.) for each and every one of the governing authorities. All questions that the contractor has regarding interpretation and/or the applicability of any and all construction safeguards should be directed to authority having jurisdiction for the particular governing authority responsible for the requirement in question.

IFC, chapter 13 requires: a fire watch is to be conducted in accordance with the intentional fire code and as approved by the local authority having jurisdiction.

- **when required** - a fire watch shall be provided during hot work activities and shall continue for not less than 30 minutes after the conclusion of the work (unless longer is required by the local A.H.J.) the fire code official, or responsible manager under a hot work program, is authorized (and allowed) to extend the fire watch based on the hazards or work being performed.
- **location** - the fire watch shall include the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watches to ensure that exposed areas are monitored.
- **duties** - individuals designated to fire watch duty shall have fire-extinguishing equipment readily available and shall be trained in the use of such equipment. Individuals assigned to fire watch duty shall be responsible for extinguishing spot fires and communicating an alarm.
- **fire training** - the individuals responsible for performing the hot work and individuals responsible for providing the fire watch shall be trained in the use of portable fire extinguishers.
- **fire hoses** - where fire hoses are required, they shall be connected, charged and ready for use.
- fire extinguisher - not less than one portable fire extinguisher complying with section 906 (IFC) and with a minimum 2-a:20-b:c rating shall be readily accessible within 30 feet of the location where hot work is performed.
- **pre-hot-work check** - a pre-hot-work check shall be conducted prior to work to ensure that all equipment is safe and hazards are recognized and protected. A report of the check shall be kept at the work site during the work and available upon request. The pre-hot-work check shall determine all of the following.:
 1. Hot work equipment to be used shall be in satisfactory operating condition and in good repair.
 2. Hot work site is clear of combustibles or combustibles are protected.
 3. Exposed construction is of noncombustible materials or, if combustible, then protected.
 4. Openings are protected.
 5. Floors (deck) is kept clean.
 6. No exposed combustibles are located on the opposite side of partitions, walls, ceilings or floors.
 7. Fire watches, where required, are assigned.
 8. Approved actions have been taken to prevent accidental activation of suppression and detection equipment.

IEBC chapter 15, construction safeguards sets forth requirements for protecting safety and protection of public/private properties. Although all worksite safety and protection is the responsibility of the contractor; additionally, these are some of the specific items listed in IEBC (chapter 15) that are required:

- **storage and placement** - construction equipment and materials shall be stored and placed so as not to endanger the public, the workers or adjoining property (on and off this site) for the duration of the construction project.
- **required exits**, existing structural elements, fire protection devices, and sanitary safeguards shall be maintained at all times during alterations, repairs or additions to any building or structure.
Exceptions: 1. When such required elements or devices are being altered or repaired, adequate substitute provisions shall be made. (as approved by the A.H.J.) 2. When the existing building is not occupied.
- **manner of removal** - waste materials shall be removed in a manner that prevents injury or damage to persons, adjoining properties (on and off of this site) and public rights-of-way.
- **fire safety during construction** - fire safety during construction shall comply with the applicable requirements for the international building code and the applicable provisions of chapter 33 of the international fire code.
- **protection of pedestrians** - pedestrians shall be protected during construction and demolition activities as required by (the barricade, walkways, railings, barriers, covered walkways, etc.) Requirements of IEBC, chapter 15) signs shall be provided to direct pedestrian traffic.

- **walkways** - a walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. Walkways shall be of sufficient width to accommodate that pedestrian traffic, but in no case shall they be less than 4 feet in width. Walkways shall be accessible in accordance with chapter 11 of the international building code and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot.
- **directional barricades** - pedestrian traffic shall be protected by a directional barricade where the walkway extends into the street. The directional barricade shall be of sufficient size and construction to direct vehicular traffic away from the pedestrian path.
- **construction railings** - construction railings shall be at least 42 inches in height and shall be sufficient to direct the pedestrians around construction areas.
- **barriers** - barriers shall be a minimum of 8 feet in height and shall be placed on the side of the walkway nearest the construction. Barriers shall extend the entire length of the construction site. Openings in such barriers shall be protected by doors that are normally kept closed.
- **barrier design** - barriers shall be designed to resist loads required in chapter 13 of the international building code unless constructed as follows:
 - ... barriers shall be provided with 2x4 top and bottom plates
 - ... the barrier material shall be a minimum of 3/4 inch boards or 1/4 inch wood structural use panels.
 - ... wood structural use panels shall be bonded with an adhesive identical to that for exterior wood structural use panels.
 - ... wood structural use panels 1/4 inch or 1/16 inch in thickness shall have studs spaced not more than 2 feet on center.
 - ... wood structural use panels 3/8 inch or 1/2 inch in thickness shall have studs spaced not more than 4 feet on center. Provided a 2-inch by 4-inch stiffener is placed horizontally at the mid-height where the stud spacing exceeds 2 feet on center.
 - ... wood structural use panels 5/8 inch or thicker shall not span over 8 feet.
- **covered walkways** - covered walkways shall have a minimum clear height of 8 feet as measured from the floor surface to the canopy overhead. Adequate lighting shall be provided at all times. Covered walkways shall be designed to support all imposed loads. In no case shall the design live load be less than 150 PSF for the entire structure.
 - **exception:** roofs and supporting structures of covered walkways for new, light-framed construction not exceeding two stories above grade plane are permitted to be designed for a live load of 75 PSF or the loads imposed on them, whichever is greater. In lieu of such designs, the roof and supporting structure of a covered walkway are permitted to be constructed as follows:
 - ... footings shall be continuous 2x6 members.
 - ... posts not less than 4x6 shall be provided on both sides of the roof and spaces not more than 12 feet on center.
 - ... stringers not less than 4x12 shall be placed on edge upon the posts.
 - ... joists resting on the stringers shall be at least 2x8 and shall be spaced not more than 2 feet on center.
 - ... the deck shall be planks at least 2 inches thick or wood structural panels with an exterior exposure durability classification at least 23/32 inch thick nailed to the joists.
 - ... each post shall be knee braced to joists and stringers by 2x4 minimum members 4 feet long.
 - see all requirements for repair, maintenance and removal of all barriers
 - protection of adjoining property - adjoining public and private property shall be protected from damage during construction and demolition work protection must be provided for footings, foundations, party walls, chimneys, skylights and roofs. Provisions shall be made to control water runoff and erosion during construction and demolition activities.
- **temporary use of streets, alleys and public property:**
 - **storage and handling of materials** - the temporary use of streets or public property or the storage or handling of materials or equipment required for construction demolition, and the protection provided to the public shall comply with the provisions of the applicable governing authority and this chapter (chapter 15, IEBC)

.. **obstructions** - construction materials and equipment shall not be placed or stored so as to obstruct access to fire hydrants, standpipes, fire or police alarm boxes, catch basins or manholes, nor shall such material or equipment be located within 20 feet of a street intersection, or placed so as to obstruct normal observations of traffic signals or to hinder the use of public transit loading platforms.

.. **utility fixtures** - building materials, fences, sheds or obstructions of any kind shall not be placed so as to obstruct free approach to any fire hydrant, fire department connection, utility pole, manhole, fire alarm box or catch basin, or as to interfere with the passage of water in the gutter. Protection against damage shall be provided to such utility fixtures during the progress of the work, but sight of items shall not be obstructed.

The contractor is responsible for being familiar with and adhering to all osha standards for scaffolding, stair towers and similar structures. Although all such structures must be properly and adequately supported, the contractor must obtain prior approval before anchoring to the building so that the method of attachment and required repair can be approved by the owner prior to installation.

If the Contractor is allowed to temporarily block any streets or vehicular access ways to access the construction, drop off materials, remove demolished materials or for any other reason related to the project. At a minimum, orange safety netting will be required around this entire blocked area. The Contractor must furnish barricades that are reflective and lit at night with blinking safety lights to warn oncoming traffic that the street is blocked or partially blocked. The Contractor is responsible for providing trained flagmen to managing traffic on this street during any time that workers are present at this site. The Contractor must also provide signage to direct pedestrian traffic around the work site. Signs (2'x4' minimum) shall be provided at each sidewalk directing pedestrians around the work area. All fencing, barricades, signage wording, location, and management of the worksite are subject to review, addition and alteration by the municipal and/or using agency Safety Officer and/or Authority Having Jurisdiction.

END OF SECTION 02075

SECTION 02102

EXISTING UTILITIES

PART 1 – GENERAL

1.01 EXISTING UTILITIES

- A. The Contractor shall be solely responsible for making all arrangements for the location of all utility services on site. These arrangements are to be made with all utility and service providers, the state's "One Call" service, and the owner (to ensure that no owner installed or provided utilities or services exist that may not be recorded by the service providers). The Contractor shall be fully responsible for the preservation of existing utilities during the project.
- B. The Contractor shall be solely responsible for the scheduling for location of utility lines by the various utilities whenever trenching or boring. The Contractor is also solely responsible for the scheduling for location of utilities and services during demolition or any other destructive activity. The Contractor shall be solely responsible for the scheduling/coordinate of the necessary extension of the any existing electrical, mechanical or plumbing features required for the completion of this project and notifying the service provider.
- C. Local power company(s) are to relocate existing poles (or services) that conflict with the construction. All other service relocation is to be either performed by the service provider or relocated by the Contractor with the permission and at the direction of the service provider. All costs associated with these relocation(s) shall be borne by the Contractor.
- D. The Contractor shall schedule/coordinate any interruptions (required by himself, subcontractors, service providers, etc.) in any utility or service with the Owner and the Architect's office. The Contractor shall allow ample time for the Owner to make all necessary accommodations so that the utility interruption does not adversely affect the building or site occupants.
- E. The Contractor shall be responsible for altering mechanical and electrical systems as necessary to accommodate new construction, roofing materials, etc.

PART 2 – PRODUCTS

2.01 MECHANICAL WORK:

- A. Provide equipment, labor, material, etc., required to make a complete working installation as shown, specified or as necessary to achieve work that affects services.
- B. Equipment and materials used in the work shall be:
 - 1. In accordance with the contract documents.
 - 2. The best quality and grade for the use intended
 - 3. New and unused.
 - 4. The manufacturer's latest standard or current model.
- C. All equipment and method shall be installed and connected in accordance with the best engineering practices and in accordance with the manufacturer's recommendations.
 - 1. Contractor is responsible for dimensions and sizes of equipment. Inform Architect in writing of equipment differing from that shown.

- D. Mechanical work includes, but is not limited to:
1. Make arrangements with local utility company for services as shown, specified and/or required.
 2. Obtain all permits and inspections including: building permits, health department permits and sewer tap permits.
 3. Disconnect, remove and re-install mechanical and utility services located on or crossing through contract limits, above or below grade, obstructing construction of project or conflicting with completed project or any applicable codes.
 4. Maintain existing systems in operating condition to serve the continued operation for partial building occupancy spaces that must remain in operation during the construction period.
 5. Restore site to original condition or new final grades. Provide paving, concrete, seed, or sod.
 6. Complete insulation on piping, ductwork and equipment.
 7. Provide roofing including flashing, and counter flashing for roof mounted equipment, roof penetrations and supports for work in this Division, unless noted otherwise.

2.02 WORK IN EXISTING BUILDINGS:

- A. Existing mechanical (HVAC, plumbing, and fire protection) systems serving spaces involved in construction, or areas affected by construction, must be maintained and protected.
- B. Contractor shall protect existing systems to keep them operational, or shall relocate the systems to keep them operational.
- C. Temporary systems shall maintain the same level of capacity, protection, and safety provided by the permanent system being modified.
- D. Coordinate routing of temporary systems and scheduling of interruptions with General Contractor, other trades, and Owner.
- E. Disconnect and remove temporary systems when permanent systems are installed and running.

2.03 REQUIREMENTS OF REGULATORY AGENCIES:

- A. Obtain and pay for all permits required for the work. Comply with all ordinances pertaining to work described herein.
- B. Install the work under this Division in accordance with drawings and specifications and the standards and codes (latest edition) that apply to this work. In the event of a conflict, install work in accordance with the most stringent code requirements determined by Architect.
- C. Arrange, pay for and complete work to pass required tests by agencies having authority over work. Deliver to Architect Certificates of Inspection and approval issued by authorities.

2.04 GENERAL JOB REQUIREMENTS:

- A. Drawings and Specifications:
 1. Drawings and specifications are complementary. Work called for by one is binding as if called for by both.
- B. Provide necessary offsets, elbows and fittings as required to avoid conflict with equipment of other Divisions and to obtain proper headroom and clear passageways. This shall be

done at no additional cost to the Owner.

A. Underground Utilities/Concealed Utilities:

1. All utilities and services, whether shown on the drawings or not, shall be suitably protected and maintained, and any damages thereto shall be promptly repaired. Owner shall be advised immediately of any damages sustained. The Contractor shall advise the Owner three (3) days in advance of any operation which could possibly disrupt any underground utility. The Contractor shall utilize locator services to mark any underground utilities in the area he is working in, and shall make any other measure deemed necessary to avoid utility disruption.

A. Workmanship, Warranty and Acceptance:

1. Work under this Division shall be first class with emphasis on neatness and workmanship.
2. Install work using competent mechanics, under supervision of foreman, all duly certified by local authorities. Installation subject to Architect's observation, final approval, and acceptance. Architect may reject unsuitable work.
3. Furnish Architect written warranty, stating that if workmanship and/or materials executed under this Division is proven defective within one (1) year after final acceptance, such defects and other work damaged will be repaired and/or replaced.

A. Materials and Substitutions:

1. All materials shall be new. All materials and equipment for which a UL Standard, an AGA approval, an AWWA standard, FM listing or ASME requirements is established, shall be so approved and labeled or stamped.

2.05 PROTECTION AND STORAGE:

- A. Protect all equipment and materials, from damage by weather, entrance of water or dirt. Cap open piping, use plastic covers made for that purpose. Do not use rags or construction debris.
- B. Avoid damage to materials and equipment in place. Repair, or remove and replace damaged work and materials.
- C. Protect all surfaces from weld spatter, solder and cutting oil.
- D. Deliver equipment and materials to job site in original, unopened, labeled container. Store to prevent damage and injury.

3.01 ELECTRICAL WORK

- A. In general, all materials shall be new, U.L. approved and listed for the specific application, as specified or required, and be properly installed.

3.02 CONDUIT AND FITTINGS:

- A. Conduit and installation shall conform to the following: All wiring shall be in NEC approved raceways sized as shown on the drawings, or if not sized on the drawings, in accordance with the latest edition of the National Electric Code.

3.03 FUSES:

- A. All fuses shall be of the same manufacture as produced by Chase-Shawmut, Bussman or

- equal.
- B. Fuses for all circuits shall be of type recommended by the manufacturer and sized in accordance with the latest edition of the National Electric Code to provide a coordinated system of overcurrent protection.

3.04 BREAKERS:

- A. Breakers shall be of size and type as shown on drawings and schedules by Square D, General Electric, ITE or equal. Breakers shall, in general, be quick-make, quick-break; have toggle mechanism, insuring full contact pressure until time of opening whether manually or automatically operated; have inverse time tripping characteristics with fixed thermal and magnetic trip element which trips free; allow the thermal trip action to hold on harmless momentary overload; on short circuit or heavy overload, the magnetic trip element shall instantly trip without damage or injury; have non-welding, non-corroding contacts; mechanism enclosed in molded Bakelite case, sealed to prevent tampering or unauthorized changes in calibration; be U.L. listed and meet NEMA standards.
- B. All multiple pole breakers shall have common trip. Wires, pins, etc. between single pole breakers to form common trip will not be acceptable. In general, all 120 volt lighting and receptacle circuits shall be run from 20 ampere single pole breakers. Where panel spaces are called for, they shall be complete with bus for future breaker installation. All breakers shall give a visual indication as to whether it is "ON", "OFF" or "TRIPPED".

3.05 DISCONNECTS:

- A. Furnish and install, where noted on drawings or required, general duty front operated, enclosed safety switches as manufactured by Square D, General Electric, ITE, or equal.
- B. Switches shall be in proper NEMA enclosure as required by location or as noted on drawings; quick-make and quick-break type; horsepower rated; capable of interrupting the locked rotor current of the motor served.

3.06 WIRE AND CABLE:

- A. All wire and cable shall comply with the latest specifications and requirements of the NFPA and/or the Insulated Power Cable Engineers Association and shall be of the quality as manufactured by Triangle, Crescent, General Cable, or equal.
- B. Wire and cable shall conform to the following, unless otherwise specified, noted on the plans, or required:
1. All conductors for wire and cable shall be copper based on 98% conductivity according to Matteisen's Standard, and shall be tinned or untinned in accordance with established standards for the type of insulation. Stranding and materials of conductors shall be in accordance with ASTM Designation B8 and B33. All wire and cable shall be stamped approximately every two feet to indicate voltage, type, temperature rating, etc.
- C. Conductors #10 AWG and smaller shall be solid, and those #8 AWG and larger shall be stranded.

END OF SECTION 02102

SECTION 02104
DISPOSAL OF MATERIAL

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Disposal of Material from project site(s).

PART 2 - PRODUCTS

PART 3 – EXECUTION

3.01

- A. Removal and disposal of materials shall be done in a manner acceptable to the Architect, Engineer and Owner.
- B. All applicable federal, state, city, and county rules, regulations or ordinances covering handling, transporting, moving, re-establishing, demolition or disposal of structures or appurtenances shall be complied with.
- C. If hazardous materials or suspected hazardous materials are encountered, the Contractor shall immediately contact the Owner and Architect.

END OF SECTION 02104

SECTION 02930

LAWNS AND GRASSING

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section includes seeding all exterior ground areas within the limits of the contract (and adjacent areas damaged during construction), except surfaces occupied by buildings, structures and pavement, and areas indicated as undisturbed, or otherwise planted as shown on drawings. The work shall include furnishing and/or spreading topsoil, finish grading, preparing seed bed, covering seeds and compacting seed bed, and providing plant establishment in compliance with the contract and specifications.
- B. When grassed areas have become eroded or otherwise damaged during the period of this contract due to construction activities or staging of materials, the affected areas shall be repaired to re-establish the surface and condition of the soil as provided for in these specifications. Such areas shall be reseeded as specified in this section.

1.02 CONDITIONS

- A. Permanent seeding shall be conducted only between April 1st and September 1st, temporary winter seeding will be required followed by permanent seeding executed as possible thereafter within the allowable planting schedule.
- B. Seeding operations shall not begin until all construction procedures have been completed, unless otherwise approved.

PART 2 - MATERIALS

2.01 MATERIALS

- A. Fertilizer: Commercial fertilizer shall be 13-13-13 formula 13% nitrogen, 13% phosphoric acid, 13% potash. Fertilizer shall be dry, granular and bagged in manufacturer's original unopened container.
- B. Agricultural Lime: Ground or pulverized, containing not less than 90% calcium carbonate and shall be ground to such a fineness that 50% will pass through a 100-mesh sieve and 90% will pass through a 20-mesh sieve.
- C. Seed: All seed shall comply with the seed laws of the State of Mississippi and all applicable regulations. The seed shall be fresh, clean, of the best grade, vitality, purity and germination, and shall be delivered in bags showing percent of germination and purity of seed, and the percent of obnoxious weeds and inert matter.
 - 1. Bermuda (permanent grass) - common hulled, new crop seed, testing 98% for purity and 90% for germination.
 - 2. Perennial Rye (temporary grass) - Testing 95% for purity and 85% for germination.
- D. Mulching: Threshed straw of cereal grain (wheat, rice, oats). All material shall be free of Johnson grass broom sedge, weed seed and noxious materials.
- E. Topsoil: Natural, fertile, friable soil possessing characteristics of representative productive soils in the vicinity. It shall be free of stones, lumps, plants, roots, obnoxious grass and weeds and other foreign matter. It shall be of uniform composition throughout, not excessively acid or alkaline, nor

contain substances which may be harmful to plant growth. Existing on-site soil may be utilized in planting soil mix if of good quality to promote healthy growth and is approved by Architect. Topsoil shall not be stripped, collected or deposited while wet.

PART 3 EXECUTION

3.01 GROUND PREPARATION

- A. Thoroughly loosen the surface of all areas to be seeded to a depth of two (2) inches by plowing, discing and harrowing, or by other approved methods. All clods and lumps shall be pulverized to provide a smooth, uniformly loose, well-broken surface, free of roots and other objectionable foreign matter.
- B. Topsoil shall be placed evenly to a minimum depth of two (2) inches.
- C. At least seven (7) days prior to seeding, lime shall be applied at rate of 50 lbs. per 1,000 S.F. and thoroughly incorporated into soil to a depth of two (2) inches.
- D. Grade lawn areas to finish grades, filling as needed or removing surplus dirt and floating areas to a smooth, uniform grade. Slope all lawn areas to drain. Roll, scarify, rake and level as necessary to obtain true even lawn surfaces.
- E. Hand dressing will be used in all areas within twenty (20) ft. of any building construction to obtain a perfectly smooth and properly graded area to provide drainage away from the structure and paved areas with elevations as shown on drawings. All other areas shall be machine graded unless otherwise noted.

3.03 SEEDING

- A. All seed shall be sown in compliance with the dates indicated in section 2.01 C.
- B. No seeding shall be conducted during windy weather or when the ground is frozen, excessively wet, or in a non-tillable condition.
- C. Seed shall be uniformly sown at the rate of 1-1/2 lbs. per 1000 sq. ft. for Bermuda; 6 lbs. per 1000 sq. ft. for ryegrass.
- D. Seed shall be sown preferably by mechanical spreaders. Entire seeded area shall be raked to cover the seed to a depth of 1/8 to 1/2 inch, thoroughly rolled and then watered deeply with a fine spray.

3.04 MULCHING

- A. Mulch shall be placed uniformly in a continuous blanket at a rate of one (1) bale per 1000 sq. ft. Mulching shall take place within 24 hours after completion of seeding operations and shall begin on the windward side of areas and from tops of slopes. The use of wet vegetative materials will not be permitted and baled material shall be loose and thoroughly broken before it is distributed.

3.05 ESTABLISHMENT AND MAINTENANCE

- A. Lawn areas shall be protected and maintained by watering, mowing and reseeding as may be necessary for at least 30 days after completion of the last lawn operation and as much longer as is necessary to produce a uniform stand of grass. Grass shall be considered established and accepted when each sq. ft. of grass area contains a sufficient number of well rooted and growing grass plants to provide a reasonable green cover, sufficient erosion control, and a definite green appearance during the growing season.

3.06 PROTECTION

- A. Restrict pedestrian and vehicular traffic from seeded areas after planting and until grass is established and accepted.

3.07 REPAIRING/RESEEDING

- A. Unaccepted areas requiring reseeding shall be so designated by the Architect. Reseeding shall be in compliance with the specifications herein and in accordance with the planting schedule. Reseeded areas shall be also remulched.
- B. When grassed areas have become eroded or otherwise damaged during the period of this contract due to construction activities or staging of materials, the affected areas shall be repaired to re-establish the surface and condition of the soil as provided for in these specifications. Such areas shall be reseeded as specified. Placing and reshaping of all earthwork shall be in accordance with the direction of the Architect and owner.
- C. No additional payment will be made for refertilizing, reseeding, remulching, or repairing eroded areas.

END OF SECTION 02930

SECTION 05500

METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated aluminum items, ferrous metal items, galvanized, and prime painted.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Not used.

1.03 RELATED SECTIONS

- A. Asphaltic Concrete Paving
- B. Roof related specifications
- C. Concrete Reinforcement.
- D. Cast-in-Place Concrete.
- E. Section 09900 - Painting: Paint finish.

1.04 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Not used.

1.05 REFERENCES

- A. ASTM A36 - Structural Steel.
- B. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
- C. ASTM A123 - Zinc (Hot-Galvanized) Coatings on Products Fabricated From Rolled, Pressed and Forged Steel Shapes, Plates, Bars, and Strip.
- D. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- E. ASTM A283 - Carbon Steel Plates, Shapes, and Bars.
- F. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners.
- G. ASTM A325 - High Strength Bolts for Structural Steel Joints.
- H. ASTM A386 - Zinc-Coating (Hot-Dip) on Assembled Steel Products.

- I. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.

- J. ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- K. ASTM B177 - Chromium Electroplating on Steel for Engineering Use.
- L. AWS A2.0 - Standard Welding Symbols.
- M. AWS D1.1 - Structural Welding Code.
- N. SSPC - Steel Structures Painting Council.

1.06 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
- C. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

1.07 QUALIFICATIONS

- A. Prepare Shop Drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of the Project.
- B. Welders Certificates: Submit under provisions of Section 01300, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.08 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on the Drawings and shop drawings.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Steel Sections: ASTM A36.
- B. Steel Tubing: ASTM A500, Grade B, ASTM A501.
- C. Plates: ASTM A283.
- D. Pipe: ASTM A53, Grade B, Schedule 40.
- E. Fasteners: As required for specific application.
- F. Bolts, Nuts, and Washers: ASTM A325, A307, galvanized to ASTM A153 for galvanized components.
- G. Welding Materials: AWS D1.1; type required for materials being welded.

- H. Touch-Up Primer for Galvanized Surfaces: SSPC 20, Type I Inorganic.
- J. Not Used.

2.02 FABRICATION

- A. Fit and shop assemble in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FINISHES

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Do not prime surfaces in direct contact with concrete or where field welding is required.
- C. Prepare, prime, then paint items with two coats in accordance with Painting Specification Section 09900.
- D. Galvanized items to minimum 1.25 oz/sq ft zinc coating in accordance with ASTM A386.
- E. Aluminum items to be finished to match adjacent aluminum assemblies such as storefront aluminum, door frames, etc.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required, see Painting Specification Section 09900.

- B. Supply items required to be cast into concrete with setting templates, to appropriate sections.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated on Drawings and shop drawings.
- D. Perform field welding in accordance with AWS D1.1.
- E. Obtain Architect/Engineer approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not galvanized, except surfaces to be in contact with concrete.

3.04 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

3.05 SCHEDULE

- A. The Schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled and for more information regarding items listed below.
- B. Steel Tubes, Angles and/or miscellaneous shapes: (handrails, guardrails, etc.) Zinc primer, ready for painting with alkyd enamel finish paint.
- C. Steel Stair Assemblies: Zinc or metal primer, as applies, ready for painting with alkyd enamel finish paint.
- D. Lintels: As detailed; prime paint finish.
- E. Hoistway Divider Beams: Beam sections; prime paint finish.
- F. Braces, hangers, and supports for miscellaneous wall mounted, wall assemblies, exterior metal or stone, roofing supports, and/or ceiling suspended items, prime and paint as required.
- G. Fabricates ladders and associated supports.
- H. Miscellaneous metal sheeting, screens, perforated metal, expanded metal, etc. Prime and paint.

END OF SECTION

SECTION 06100
ROUGH CARPENTRY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This section includes the following:
 - 1. Wood Grounds, nailers and blocking

1.03 DEFINITIONS

- A. Rough carpentry includes carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

1.04 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Wood treatment data as follows including chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material:
 - 1. For each type of preservative treated wood product include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 - 2. For water-borne treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to project.
 - 3. For fire-retardant-treated wood products, include certification by treating plant that treated material complies with specified standard and other requirements.
 - 4. Warranty of chemical treatment manufacturer for each type of treatment.

1.05 QUALITY ASSURANCE

- A. Single-Source Responsibility for Treated Wood: Obtain each type of fire-retardant-treated wood products from one producer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage: Keep material under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
 - 1. For lumber pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 PRODUCTS

2.01 LUMBER, GENERAL

- A. Lumber Standards: Furnish lumber manufactured to comply with PS 20 “American Softwood Lumber Standard” and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee’s (ALSC) Board of Review.
- B. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:
 - 1. SPIB – Southern Pine Inspection Bureau
 - 2. WCLIB – West Coast Lumber Inspection Bureau
 - 3. WWPA – Western Wood Products Association
- C. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
 - 1. Provide dressed lumber, S4S, unless otherwise indicated.

2.02 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction including bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
- D. Grade: “Standard” grade light-framing-size lumber of any species or board-size lumber as required. “No. 3 common” or “Standard” grade boards per WCLIB or WWPA rules or “No. 2 Bards” per SPIB rules.

2.03 FASTENERS

- A. General: Provide fasteners that comply with requirements specified in this article for material and manufacturer.
 - 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.
 - 2. Provide fasteners of type, material, size, corrosion resistance, holding power and other properties required to fasten wood materials securely to steel framing and furring member substrates involved; complying with the recommendations of gypsum drywall manufacturers for applications indicated.
- B. Power Driven Fasteners: National Evaluation Report NER-272.
- C. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

2.04 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

- A. General: where lumber is indicated as preservative-treated wood or is specified herein to be treated, comply with applicable requirements of AWP Standards C2 (Lumber) and C9 (Plywood). Mark each treated item with the AWPB or SPIB Quality Mark Requirements.

- B. Pressure-treat above-ground items with water-borne preservatives to a minimum retention of 0.25 pcf. For interior uses, after treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:
 - 1. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members **in contact with masonry or concrete.**
 - 2. Wood floor plates **installed over concrete slabs** directly in contact with earth.
 - 3. Wood cants, nailers, curbs, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.
- C. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWPA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.
- D. Inspect each piece of treated lumber after drying and discard damaged or defective pieces.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, and similar supports to allow attachment of other construction.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.

3.02 TRUSS FRAMING

- A. Provide trusses of sizes and spacing as shown.
- B. Attach to wood bearing members by use of galvanized metal connectors. **DO NOT TOENAIL.** Provide blocking as required.
- C. Provide bridging between trusses.

3.02 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.

SECTION 06114

WOOD BLOCKING AND CURBING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Roof curbs and cants.
- B. Blocking in wall and roof openings and as necessary for the attachment of Architectural, Electrical and Mechanical assemblies.
- C. Wood furring and grounds.
- D. Concealed wood blocking for support of toilet and bath accessories, wall cabinets, wood assemblies, fixtures and wood trim.
- E. Telephone and electrical panel boards and other services .
- F. Preservative treatment of wood.

1.02 RELATED SECTIONS

- A. Section 06200 Finish Carpentry
- B. Section 06400 Architectural Woodwork
- C. Relevant Architectural Sections: Windows and Doors, Storefront, Access Panels, etc.
- D. Relevant Mechanical & Electrical Sections: Fixtures, Electrical and Telephone boards, etc.

1.03 REFERENCES

- A. ALSC - American Lumber Standards Committee: Softwood Lumber Standards.
- B. APA: American Plywood Association.
- C. AWWA (American Wood Preservers Association) C1 - All Timber Products Preservative Treatment by Pressure Process.
- D. AWWA (American Wood Preservers Association) C20 - Structural Lumber Fire Retardant Treatment by Pressure Process.
- E. NFPA: National Forest Products Association.
- F. RIS: Redwood Inspection Service.
- G. SPIB: Southern Pine Inspection Bureau.
- H. WCLIB: West Coast Lumber Inspection Bureau.
- I. WWPA: Western Wood Products Association.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.

- B. Product Data: Provide technical data on wood preservative materials and application instructions. Include certification by treatment plant stating type of solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with the following agencies:
 - 1. Lumber Grading Agency: Certified by ALSC.
 - 2. Plywood Grading Agency: Certified by APA.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Lumber Grading Rules: NFPA, RIS, SPIB, WCLIB, WWPA.
- B. Miscellaneous Framing: 19 percent maximum moisture content, pressure preservative treated when in contact with floor slab or building envelope.
- C. Plywood: APA Structural I, Grade C-D; Exposure Durability 1, 5/8" unless otherwise noted.

2.02 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Fasteners: Hot-dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
 - 2. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

2.03 WOOD TREATMENT

- A. Identify treated wood with appropriate classification marking of Underwriters Laboratories Inc., or other testing and inspection agency acceptable to authorities having jurisdiction.

- B. Fire retardant:

Factory Applied: AWPAC Treatment C20, Exterior and Interior Type, chemically treated and pressure impregnated; capable of providing a maximum flame spread/smoke development rating of 25 (or as required); manufactured by The Hickson Corporation or Hoover Treated Wood Products.

Site Applied: Class 1 intumescent coating for wood. Apply in a manner and quantity to achieve the required rating for specific application. Apply as a primer in painted applications and a clear coat in stained applications unless otherwise specified. WT-102 Fire Retardant Paint (primer) or WT-103 Fire Retardant Clear Coat; manufactured by Firetect or approved equal.

- C. Wood Preservative Pressure Treatment: AWPAC Treatment C1 using water borne preservative with 0.25 percent retainage.

- D. Wood Preservative (Surface Application): Clear type, manufactured by PPG Industries or manufacturer approved by Architect.

PART 3 EXECUTION

3.01 FRAMING

- A. Set members level and plumb, in correct position.
- B. Place horizontal members flat, crown side up.
- C. Construct curb members of single pieces.
- D. Space framing and furring 16 inches o.c.
- E. Curb roof openings (except where prefabricated curbs are provided). Form corners by alternating lapping side members.
- F. Coordinate curb installation with installation of decking and support of deck openings, roofing vapor retardant, and parapet construction.

3.02 SHEATHING

- A. Secure sheathing to framing members with ends over firm bearing and staggered.
- B. Install telephone and electrical panel boards with plywood sheathing material where required. Over size the panel by 12 inches on all sides.

3.03 SITE APPLIED WOOD TREATMENT

- A. Apply all treatments in accordance with manufacturer's instructions.
- B. Brush apply two coats of preservative treatment on wood in contact with cementitious materials, roofing and related metal flashings. Treat site-sawn cuts.

Apply the required quantity of flame retardant or fire retardant coating to achieve the required rating per the manufacturer's recommendations. See drawings and details for specific required ratings. Otherwise apply fire retardant to wood detailing in egress corridors to achieve a Class B rating (flame spread range 26-75) and in enclosed vertical exits to achieve a Class A rating (flame spread range 0-25).

All treatment preparation and application is to comply with the manufacturer's recommendations for the required rating.

- C. Allow treatment to dry prior to erecting members.

3.04 SCHEDULES

- A. Roof Blocking: S/P/F species, 19 percent maximum moisture content, pressure preservative treatment.
- B. Provide wood blocking, as needed, for complete installation.
- C. See Contract drawings for additional information and locations.

END OF SECTION

SECTION 06125

WOOD DECKING AND SHEATHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Plywood structural wood decking.

1.02 QUALITY ASSURANCE

- A. Perform Work in accordance with the following agencies:
 - 1. Plywood Grading Agency: Certified by APA.

PART 2 PRODUCTS

2.01 DECK MATERIALS

- A. Plywood: APA Rated Sheathing; 3/4" thick (unless otherwise noted, see drawings), Exterior-Exposure 1 Grade; unsanded.

2.02 ACCESSORIES

- A. Fasteners: Electro galvanized steel.

PART 3 EXECUTION

3.01 INSTALLATION - PLYWOOD DECKING

- A. Secure decking perpendicular to trusses, joists or supports; with ends staggered.
- B. Secure plywood decking edges with the use of wood panel edge clips (H Clips). These clips are to be 18-20 gauge and are to be installed at 24" on center.
- C. Anchor decking to structure. When installing over existing decking, screw the new decking down through the existing decking into the structure. Screws are to be specifically rated for exterior use (no interior type drywall screws are allowed). The maximum spacing for the screws is not to exceed 12" along each joint/rafter line.

END OF SECTION 06125

SECTION 07141

COLD LIQUID-APPLIED REINFORCED WATERPROOFING

PART 1 GENERAL

1.01 SUMMARY

- A. The new waterproofing system shall consist of a primer, 3-part cold liquid applied reinforced waterproofing membrane, flashings, and resin-aggregate textured finish layer installed **on existing exposed concrete roof deck.**
- B. Work shall include, but is not limited to, the following:
 - 1. Preparation of existing concrete, and all flashing substrates.
 - 2. Liquid applied, reinforced flashings.
 - 3. Liquid applied, reinforced waterproofing.
 - 4. Liquid applied, resin-aggregate textured finish layer.
 - 5. All related materials and labor required to complete specified waterproofing necessary to receive specified manufacturer's warranty.

1.02 RELATED SECTIONS

- A. Division 01 – General Requirements

1.03 DEFINITIONS

- A. ASTM D 1079-Standard Terminology Relating to Roofing and Waterproofing.
- B. The National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual, Fifth Edition Glossary.

1.04 REFERENCES

- A. AMERICAN CONCRETE INSTITUTE (ACI).
 - 1. ACI 301 – Specifications for Structural Concrete.
 - 2. ACI 308-Specification for Curing Concrete.
- B. AMERICAN STANDARD OF TESTING METHODS (ASTM):
 - 1. ASTM C 836 - Standard Specification for High Solids Content, Cold Liquid applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.
 - 2. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
 - 3. ASTM D 4258 – Standard Practice for Surface Cleaning Concrete for Coatings.
 - 4. ASTM D 4259 – Standard Practice for Abrading Concrete.
 - 5. ASTM D 4541 – Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

6. ASTM E 96 – Test Methods of Water Vapor Transmission of Materials.
7. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.
8. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
9. ASTM F 2170 – Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
- D. FACTORY MUTUAL (FM):
- E. INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI).
- F. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA).
- G. UNDERWRITERS LABORATORIES (UL):
 1. UL 790 Standard Test Methods for Fire Tests of Roof Coverings.
 2. UL 1256 – Fire Test of Roof Deck Constructions.

1.05 ACTION SUBMITTALS – In Accordance with Division 01 Requirements

- A. Product Data Sheets: Submit manufacturer's product data sheets, installation instructions and/or general requirements for each component.
- B. Safety Data Sheets: Submit manufacturer's Safety Data Sheets (SDS) for each component.
- C. Sample/Specimen Warranty from the manufacturer and contractor.
- D. Shop Drawings: Provide waterproofing system detail drawings.

1.06 INFORMATIONAL SUBMITTALS

- A. Contractor Certification: Submit written certification from waterproofing system manufacturer certifying that the applicator is authorized by the manufacturer to install the specified materials and system.

1.07 CLOSEOUT SUBMITTALS

- A. Warranty: Provide manufacturer's and contractor's warranties upon substantial completion of the waterproofing system.

1.08 QUALITY ASSURANCE

- A. MANUFACTURER QUALIFICATIONS:
 1. Manufacture shall have 20 years of experience manufacturing waterproofing materials.
 2. Manufacturer shall have trained technical service representatives employed by the manufacturer, independent of sales.
 3. Manufacturer shall provide site visit reports in a timely manner.
 4. Manufacturer shall provide specified warranty upon satisfactory project completion.

B. CONTRACTOR QUALIFICATIONS:

1. Contractor shall be authorized by the manufacturer to install specified materials prior to the bidding period through satisfactory project completion.
2. Applicators shall have completed projects of similar scope using the same materials as specified herein.
3. Contractor shall provide full time, on-site superintendent or foreman experienced with the specified waterproofing system through satisfactory project completion.
4. Applicators shall be skilled in the application methods for all materials.
5. Contractor shall maintain a daily record, on-site, documenting material installation and related project conditions.
6. Contractor shall maintain a copy of all submittal documents, on-site, available at all times for reference.

C. SUBSTRATE EVALUATION: **In general, this material will be applied to the existing concrete substrate. This substrate appears to have previously applied coating(s) and or paint. These materials must be removed or prepared as necessary to accept the new materials. Follow all manufacturer's recommendations for preparation of all surfaces.**

1. Contractor shall evaluate substrate moisture content and adhesion of waterproofing materials to substrate throughout the work and record with daily inspection reports or other forms of reporting acceptable to the owner or his designated representative and the waterproofing manufacturer.
 - a. Moisture content: Evaluate substrate moisture content to determine acceptability for application of the specified liquid applied waterproofing materials. Moisture testing shall be performed by means suitable to the project application, or by testing substrate relative humidity (RH) in accordance with ASTM F 2170 when needed, required, or if substrate moisture content is in question.
 - b. Adhesion: Evaluate soundness and surface preparation of concrete and/or masonry substrates. Prepare representative areas using specified methods complete with applied primer and waterproofing membrane. Test for minimum acceptable tensile bond strength values as required in accordance with ASTM D 4541. Evaluate all areas where concrete appears to differ in appearance or consistency, if multiple areas are involved in the scope of work, evaluate each area with a minimum of (3) tests for every 5,000 ft² or as required by project conditions.

1.09 DELIVERY, STORAGE AND HANDLING

- A. Refer to each product data sheet or other published literature for specific requirements.

- B. Refer to product Safety Data Sheets (SDS) for storage and handling related hazards, and take all necessary measures and precautions to comply with storage and handling requirements.
- C. Deliver materials and store them in their unopened, original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.
- D. Protect and store materials in a dry, well-vented, and weatherproof location. Only materials to be used the same day shall be removed from this location.
- E. When materials are to be stored outdoors, store away from standing water, stacked on raised pallets or dunnage, at least 4 in (100 mm) or more above ground level. Carefully cover storage with "breathable" tarpaulins to protect materials from precipitation and to prevent exposure to condensation.
- F. Properly dispose of all product wrappers, pallets, cardboard tubes, scrap, waste, and debris. All damaged materials shall be removed from job site and replaced with new, suitable materials.

1.10 SITE CONDITIONS

- A. SAFETY:
 - 1. The contractor shall be responsible for complying with all project-related safety and environmental requirements.
 - 2. The contractor shall review project conditions and determine when and where conditions are appropriate to utilize the specified liquid applied or semi-solid materials. When conditions are determined by the contractor to be unsafe or undesirable to proceed, measures shall be taken to prevent or eliminate the unsafe or undesirable exposures and conditions, or equivalent approved materials and methods shall be utilized to accommodate requirements and conditions.
 - 3. The contractor shall refer to product Safety Data Sheets (SDS) for health, safety, and environment related hazards, and take all necessary measures and precautions to comply with exposure requirements.
- B. ENVIRONMENTAL CONDITIONS:
 - 1. Monitor substrate and material temperature, as well as all environmental conditions such as ambient temperature, moisture, sun, cloud cover, wind, humidity, and shade. Ensure conditions are satisfactory to begin work and ensure conditions remain satisfactory during the installation of specified materials. Materials and methods shall be adjusted as necessary to accommodate varying project conditions. Materials shall not be installed when conditions are unacceptable to achieve the specified results.
 - 2. Precipitation and dew point: Monitor weather to ensure the project environment is dry before, and will remain dry, during the application of waterproofing materials. Ensure all materials and substrates remain above the dew point temperature as required to prevent condensation and maintain dry conditions.

3. Contractor shall implement odor control measures where required during the application of waterproofing materials adjust methods as necessary to accommodate varying project conditions.

1.11 WARRANTY

Cover damage to roofing system components resulting from failure to prevent penetration of water through any component of the roof system. Warranty must cover labor (workmanship) and materials. The completed roof shall be inspected by the manufacturer prior to issuing this warranty.

Manufacturer shall review project prior to bidding. Any condition which may negatively affect the warranty must be identified by the contractor prior to bidding so that nonconforming condition can be corrected or otherwise accounted for. Otherwise, the Contractor will be responsible for all corrections. No exceptions to the required warranty will be allowed.

- A. Manufacturer's Waterproofing No Dollar Limit (NDL) Warranty. The manufacturer shall provide the owner with the manufacturer's warranty providing labor and materials to for 20 years from the date of substantial completion of the project. Project Warranty (Manufacturer): Provide written warranty, signed by Manufacturer of primary roofing materials and his authorized installer, agreeing to replace/repair defective materials, installation and workmanship. Warranty must be a no dollar limit, watertightness warranty on entire roof system (all components, accessories, etc.). Warranty must meet all additional requirements set forth in all appropriate Division 1 Specification Sections (Warranties and Bonds, Contract Closeout, etc.). All sheet metal, flashing, trim, counterflashing, parapet caps, and similar items covered by or listed in the specifications or otherwise shown in the contract documents must be covered by the roof system manufacturer's 20-year warranty.
- B. Provide two-year (2 year) contractors' unlimited watertightness warranty (for labor/workmanship and materials) from the date of substantial completion. Comply with all provisions of all appropriate Division 1 Specification Sections to be supplied by roofing contractor to cover entire roof assembly including flashings and other accessories.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. SINGLE SOURCE MANUFACTURER: All liquid applied membrane shall be manufactured by a single supplier with 20 years or more manufacturing history in the US.

1. Comply with the manufacturer's requirements as necessary to provide the specified warranty.
- B. BASIS OF DESIGN MANUFACTURER:
 1. SOPREMA, located at: 310 Quadral Drive, Wadsworth, OH 44281; Tel: 800-356-3521; Tel: 330-334-0066; Website: www.soprema.us.
 2. Equal as approved per Division 01 Requirements

2.02 LIQUID APPLIED WATERPROOFING

These components were chosen based on ASTM designation, thickness and weight. If the manufacturer of an equal product requires a superior/premium component to meet any of the requirements listed in this specification, then it is the Contractor's responsibility to provide this (and any other accessories/materials) in order to meet these requirements.

- A. FLASHING MEMBRANE:
 1. **POLYMETHYL METHACRYLATE FLASHING MEMBRANE (PMMA):**
 - a. **SOPREMA ALSAN RS 230 FLASH:** Rapid curing, polymethyl methacrylate (PMMA) liquid resin with an embedded polyester reinforcement fabric used for monolithic waterproofing flashing membranes.
 - i. VOC content: 4.2 g/L
 - ii. Color: Grey
 - b. **SOPREMA ALSAN RS DETAILER:** Micro-fiber enhanced, rapid curing, polymethyl methacrylate (PMMA) paste resin used for flashing difficult penetrations where a resin/fleece/resin application is not practical.
 - i. VOC content: 2.6 g/L
 - ii. Color: Grey
- B. FIELD MEMBRANE:
 1. **POLYMETHYL METHACRYLATE MEMBRANE (PMMA):**
 - a. **SOPREMA ALSAN RS 230 FIELD:** Rapid curing, polymethyl methacrylate (PMMA) liquid resin with an embedded polyester reinforcement fabric used for monolithic waterproofing field membranes.
 - i. VOC content: 2.3 g/L (summer), 2.4 g/L (winter).
 - ii. Color: Grey
 - iii. Elongation at peak load, avg. (ASTM D412): 55%.
 - iv. Peak load at 73°F, avg. (ASTM D412): 809 lbf/in².
 - v. Tear strength (ASTM D 5147): 107 lbf.
 - vi. Shore A hardness, avg. (ASTM D2240): 81
 - vii. Water absorption (Method I, 24h@73°F)(ASTM D570): 0.41%.

- viii. Water absorption (Method I, 48h@122°F)(ASTM D570): 1.57%.
- ix. Low temperature flexibility (ASTM D5147): -13°F.
- x. Dimensional stability (ASTM D5147): -0.063%.

2.03

ACCESSORIES

A. PRIMERS: Provide recommended primer for application on existing concrete. Contractor is responsible for verifying existing conditions.

1. **SOPREMA ALSAN RS 276 PRIMER:** Rapid curing, polymethyl methacrylate (PMMA) liquid resin used to promote adhesion of PMMA/PMA membranes over wood, concrete and approved waterproofing board substrates.
 - a. VOC content: 2.6 g/L
 - b. Color: Clear
2. **SOPREMA ALSAN RS 222 PRIMER:** Rapid curing, polymethyl methacrylate (PMMA) liquid resin used to promote adhesion of PMMA/PMA membranes over asphaltic substrates, wood, concrete, and approved waterproofing board substrates.
 - a. VOC content: 2.5 g/L
 - b. Color: Clear
3. **SOPREMA ALSAN RS LO PRIMER:** Low odor, two-part, epoxy based primer for concrete and approved substrates.
 - a. SOPREMA ALSAN RS LO PRIMER PART A:
 - i. VOC content: <100 g/L
 - ii. Color: Ivory
 - b. SOPREMA ALSAN RS LO PRIMER PART B:
 - i. VOC content: <100 g/L
 - ii. Color: White
4. **AQUAFIN Vaportight Coat SG3 Primer:** Low odor, two-part, moisture mitigation epoxy based primer for concrete and approved substrates.
 - a. AQUAFIN Vaportight Coat SG3 PART A:
 - i. VOC content: 0 g/L
 - ii. Color: Clear
 - b. AQUAFIN Vaportight Coat SG3 PART B:
 - i. VOC content: 0 g/L
 - ii. Color: Yellowish

B. CATALYST:

1. **SOPREMA ALSAN RS CATALYST POWDER:** Reactive agent used to cure PMMA/PMA liquid resins.

C. REINFORCING FABRIC:

1. **SOPREMA ALSAN RS FLEECE:** Woven polyester reinforcement used in PMMA/PMA liquid applied membrane and flashing applications.

- a. Thickness: 30-40 mils (0.8-1 mm)
- b. Weights: 110 g/m²
- c. Width(s): Size as required.
- d. Length: 164 ft (50 m)

D. PASTE AND MORTAR:

1. **SOPREMA ALSAN RS PASTE:** Rapid curing, polymethyl methacrylate (PMMA) paste resin used to fill small cracks and voids on non-traffic bearing substrates prior to the application of PMMA/PMA membranes.
 - a. VOC content: 4.4 g/L
 - b. Color: Grey
2. **POLYMETHACRYLATE MORTAR (PMA):**
 - a. **SOPREMA ALSAN RS 263 LO MORTAR:** Rapid curing, polymethacrylate (PMA) liquid resin used as a heavy duty wearing layer in ALSAN RS pedestrian and vehicle traffic systems. Consists of ALSAN RS 223 Powder and ALSAN RS 240 LO liquid resin
 - i. **SOPREMA ALSAN RS 240 LO:** Low odor, rapid curing, polymethacrylate (PMA) liquid resin.
 - a) VOC content: 1.0 g/L
 - b) Color: Grey
 - ii. **SOPREMA ALSAN RS 223 POWDER:** Filler.
3. **POLYMETHYL METHACRYLATE MORTAR (PMMA):**
 - a. **SOPREMA ALSAN RS 233 MORTAR:** Rapid curing, polymethyl methacrylate (PMMA) liquid resin used as a heavy duty wearing layer in ALSAN RS pedestrian and vehicle traffic systems. Consists of ALSAN RS 223 Powder and ALSAN RS 210 liquid resin.
 - i. **SOPREMA ALSAN RS 210:** Rapid curing, polymethyl methacrylate (PMMA) liquid resin.
 - a) VOC content: 0.3 g/L
 - b) Color: Grey
 - ii. **ALSAN RS 223 Powder:** Filler.

E. CLEANER:

1. **SOPREMA ALSAN RS CLEANER:** Clear, blended solvent used to clean and prepare plastic and metal surfaces, and used to clean existing ALSAN RS surfaces prior to the application of PMMA/PMA liquid applied membrane and flashings.
 - a. VOC content: <5 g/L
 - b. Color: Clear

F. SURFACING AGGREGATE:

1. **SOPREMA ALSAN RS 289 TEXTURED FINISH:** Quartz aggregate used in PMMA/PMA membranes to provide a slip-resistant and mechanical bonding layer to the top coat.

- a. Color: **Standard Pebble Grey**

PART 3 EXECUTION

3.01 EXAMINATION

In general, this material will be applied to the existing exposed concrete roof deck substrate. This substrate appears to have previously applied coating(s) and or paint. These materials must be removed or prepared as necessary to accept the new materials. Follow all manufacturer's recommendations for preparation of all surfaces.

When applying over existing construction, it is the Contractor's responsibility to inspect and become thoroughly familiar with existing conditions. It is the Contractor's responsibility to verify that the existing roof deck and all associated conditions meet the roofing manufacturer's recommendations. Correct any non-complying conditions to the satisfaction of the roof system manufacturer for the required warranty and other performance requirements.

- A. Examination includes visual observations, qualitative analysis, and quantitative testing measures as necessary to ensure conditions are satisfactory to begin, and remain satisfactory throughout the project.
- B. The contractor shall examine all waterproofing substrates including, but not limited to: decks, walls, curbs, equipment, fixtures, and wood blocking.
- C. The applicator shall not begin installation until conditions have been properly examined and determined to be clean, dry and, otherwise satisfactory to receive specified waterproofing materials.

3.02 PREPARATION

- A. Before commencing work each day, the contractor shall prepare all substrates to ensure conditions are satisfactory to proceed with the installation of specified materials.
- B. Preparation of substrates includes, but is not limited to, the following:
 - 1. General:
 - a. All substrates must be clean, dry and free from gross irregularities, loose, unsound or foreign material such as dirt, ice, snow, water, grease, oil, release agents, lacquers, or any other condition that would be detrimental to adhesion of primer and/or resin materials to the substrate. Most surfaces will require mechanical abrasion in

the form of scarifying, shot-blasting or grinding to achieve a suitable substrate.

- b. Inspect all substrates, and correct defects before application of waterproofing materials. Fill all surface voids 1/16 in (1.5 mm) or greater wide and/or deep with appropriate fill material.

2. Concrete Substrates:

- a. Concrete shall comply with requirements of ACI 301 and ACI 308.
- b. Concrete compressive strength: 3,500 psi for all PMMA primers or 2,500 psi minimum when use of a moisture mitigation primer is required.
- c. Relative Humidity: Maximum 75 percent per ASTM F2170 unless otherwise approved.
- d. Surface: Scarify, shot-blast or grind to ICRI Concrete Surface Profile CSP 3 to CSP 5; CSP 3 being the preferred profile.
- e. Adhesion: Adhesion of specified primer and liquid applied membrane shall be minimum 220 psi for traffic bearing waterproofing applications or 116 psi for roofing or non-traffic bearing waterproofing applications per ASTM D4541.
- f. Areas of spalls, voids, bug holes and other deterioration on vertical or horizontal surfaces shall be repaired as required or recommended.

- C. Where conditions are found to be unsatisfactory, work shall not begin until the contractor corrects all conditions appropriately. Commencing of work shall indicate contractor's acceptance of conditions.

3.03 PRIMER APPLICATION (GENERAL)

- A. Refer to manufacturer's detail drawings, product data sheets and published general requirements for application rates and specific installation instructions.
- B. Examine all substrates and conduct adhesion peel tests as necessary, to ensure satisfactory adhesion is achieved.

3.04 PMMA PRIMER APPLICATION

- A. Mix primer resin and catalyst approximately 2 minutes using a clean spiral agitator on slow speed or stir stick until evenly mixed. Do not aerate. Mix only the amount of primer that can be used within the application time.
- B. Apply the appropriate specified primer to dry, compatible substrates as required to enhance adhesion of new specified waterproofing materials.
- C. Apply primer using brush or roller at the rate published on the product data sheet. Do not allow primer to pond or collect in low areas.

- D. Project conditions vary throughout the day. Monitor changing conditions and the curing time of primers.
- E. Allow primer to fully cure before membrane application.

3.05 EPOXY PRIMER APPLICATION

A. Low Odor Primer Applications:

1. Mix A and B parts using a clean spiral agitator on slow speed or stir stick until evenly mixed. Do not aerate. Mix only the amount of primer that can be used within the application time.
2. Apply primer to compatible, clean and prepared substrate preferably with falling temperature to reduce potential for pinholes from “off-gassing” and as required to enhance adhesion of new specified waterproofing materials.
3. Apply primer using notched squeegee and roller or brush at the rate published on the product data sheet. Do not allow primer to pond or collect in low areas.
4. When primer will be left exposed beyond recommended recoat times, broadcast to excess with #1 (0.7 – 1.2mm) kiln-dried quartz into the final coat of epoxy primer while still wet at the rate of 30 lbs/100 ft² (1.5 kg/m²) as a mechanical bonding layer. After cure, remove loose aggregate and keep dry until subsequent system components are applied.
5. Project conditions vary throughout the day. Monitor changing conditions and the curing time of primers.
6. Allow primer to fully cure before proceeding. Remove excess un-adhered aggregate from surface by broom, vacuum or oil-free blower prior to apply membrane.

3.06 EPOXY PRIMER APPLICATION

A. Moisture Mitigation Primer Applications:

1. Mix A and B parts using a clean spiral agitator on slow speed or stir stick until evenly mixed. Do not aerate. Mix only the amount of primer that can be used within the application time.
2. Apply primer to compatible, clean and prepared substrate preferably with falling temperature to reduce potential for pinholes from “off-gassing” and as required to enhance adhesion of new specified waterproofing materials.
3. Apply primer using a notched squeegee and roller or brush at the rate published on the product data sheet. Do not allow primer to pond or collect in low areas.
4. Allow primer to fully cure and inspect for bubbles, blisters, voids or pinholes.
5. Repair bubbles, blisters, voids and pinholes as recommended by manufacturer.

6. For steep slope, vertical and flashing applications, minimum two coats of primer are required.
7. When primer will be left exposed beyond recommended recoat times, following any required primer repairs, apply a second coat of primer over the in-place primer and broadcast to excess with #1 (0.7 – 1.2mm) kiln-dried quartz into the final coat of epoxy primer while still wet at the rate of 30 lbs/100 ft² (1.5 kg/m²) as a mechanical bonding layer. After cure, remove loose aggregate and keep dry until subsequent system components are applied.
8. Project conditions vary throughout the day. Monitor changing conditions and the curing time of primers.
9. Allow primer to fully cure before proceeding. Remove excess un-adhered aggregate from surface by broom, vacuum or oil-free blower prior to apply membrane.

3.07 SUBSTRATE PATCHING, LEVELING & REPAIR

A. GENERAL:

1. After priming and before commencing with application of liquid applied waterproofing, the contractor shall patch, level or repair all substrates as required to eliminate bug holes, voids, cavities, low spots, repair cracks or any other condition that may be detrimental to proper application of the liquid applied waterproofing.

B. PATCHING, LEVELING & REPAIRS:

1. Contractor shall use proprietary paste or resin-mortar for all patching, leveling or repairs wherever possible. Refer to manufacturer's detail drawings, product data sheets and published general requirements for application rates and specific installation instructions.
2. Traffic bearing substrates: Use only resin-mortar for all substrate leveling, patching and repairs.
3. Non-traffic bearing horizontal or vertical substrates: Use paste or resin-mortar for all substrate leveling, patching and repairs.
4. Application:
 - a. Install paste or resin-mortar over a fully cured primer.
 - b. The substrate should be dry and free of any dust or loose particles.
 - c. Mix paste resin and/or resin-mortar using a slow speed agitator prior to pouring into a larger container.
 - d. When required, combine the paste or resin-mortar with #1 (0.7 – 1.2mm) kiln-dried quartz aggregate as recommended for deep voids or large areas.
 - e. Mix paste and/or resin-mortar and catalyst approximately 2 minutes using a clean spiral agitator on slow speed or stir stick until evenly

mixed. Do not aerate. Mix only the amount of product that can be used within the application time.

- f. Apply the catalyzed paste and/or resin-mortar onto the substrate using a smoothing trowel, working the material into the surface for complete coverage and full adhesion.
- g. Paste and/or resin-mortar should be placed in lifts no greater than the maximum thicknesses recommended.
- h. If additional lifts will be required, broadcast top surface of the placed paste or resin-mortar with clean dry #1 (0.7 - 1.2 mm) kiln-dried quartz aggregate at approximately 25% coverage while the paste and/or resin-mortar is wet. Place next lift once the paste and/or resin-mortar has cured.

C. NON-MOVING (STATIC) CRACKS – 1mm or less:

- 1. Determine that crack is non-moving. Remove any existing filler and clean out crack by brushing and oil-free compressed air. Fill crack with resin mortar or paste as required.

D. MOVING (DYNAMIC) CRACKS – 1 mm or less:

- 1. Determine that crack is moving. Remove any existing filler and clean out crack by brushing and oil-free compressed air. Fill crack with resin-mortar or paste as required. After the resin-mortar or paste has cured, apply minimum 4 in (100 mm) wide strip of reinforced cold liquid applied membrane centered over crack.

E. MOVING (DYNAMIC) CRACKS – 3 mm or less:

- 1. Determine that crack is moving. Remove any existing filler and clean out crack by brushing and oil-free compressed air. Fill crack with resin-mortar or paste as required. After the resin-mortar or paste has cured, apply bond breaker tape 5 times in width greater than the maximum anticipated expansion. Then cover with a strip of reinforced cold liquid applied membrane centered over crack sized to provided 2 in (50 mm) minimum cover beyond all side of the bond breaker tape but no less than 6 in (150 mm) minimum width.

F. MOVING (DYNAMIC) CRACKS – Greater than 3 mm:

- 1. Moving cracks greater than 3 mm must be treated as an expansion joint.

3.08

INSTALLATION & STAGING

- A. In a normal cold liquid applied membrane application the substrate is prepared and primed, flashings are installed, followed by the application of the waterproofing membrane, mortar, surfacing and finish. When applying broadcast aggregate, the aggregate should not be left subject to the elements, and therefore must be top-coated with finish the same day of application whenever possible.
- B. If work is interrupted for more than 12 hours, use manufacturer's proprietary cleaner to clean and reactivate applied primer, resin mortar, flashing or field membrane transition areas. Cleaner should be allowed a minimum of 20 minutes

evaporation time after application and covered within 60 minutes of application or as recommended by the manufacturer.

3.09 FLASHING MEMBRANE APPLICATION

A. General:

1. Refer to manufacturer's detail drawings, product data sheets and published general requirements for application rates and specific installation instructions.
2. Provide a minimum vertical height of 8 in (200 mm) for all flashing terminations wherever possible. Flashing height shall be at least as high as the potential water level that could be reached as a result of a deluging rain and/or poor slope.
3. Do not flash over existing through-wall flashings, weep holes and overflow scuppers.
4. All flashing shall be terminated as required by the manufacturer. Cap flashings or counter flashings may be constructed of metal, stone, tile or other materials properly installed in accordance with industry-accepted practice.
5. Install all flashing membranes before installing field membranes.
6. The primed substrate shall be dry and free of any dust, loose particles or contaminants.
7. Precut reinforcing fleece to conform to terminations, transitions and penetrations being flashed. Ensure a minimum 2 in (50 mm) overlap of fleece at side laps and extend flashing 4 in (100 mm) minimum horizontally onto deck unless otherwise specified. Ensure the completed liquid applied flashing membrane is fully reinforced.
8. Wherever possible factory pre-cut fleece pipe penetration and universal corners shall be used.
9. Mix waterproofing resin and catalyst approximately 2 minutes using a clean spiral agitator on slow speed or stir stick until evenly mixed. Do not aerate. Mix only the amount of waterproofing resin that can be used within the application time.
10. Apply the base coat of catalyzed waterproofing resin onto the substrate using a brush or roller, working the material into the surface for complete coverage and full adhesion.
11. Immediately apply the reinforcing fleece into the wet base coat of resin making sure the smooth side is up. Using a brush or roller, work the reinforcing fabric into the wet resin while applying the second coat of catalyzed waterproofing resin to completely encapsulate the fleece. Avoid any folds and wrinkles.
12. At membrane tie-ins, clean cured membrane with specified cleaner before application of adjacent membrane.

B. Penetrations

1. Pipes, Conduits, Posts, Supports and Unusual Shaped Penetrations:
 - a. Pipes, conduits and other items to be flashed must be separated with ½ in (13 mm) minimum clearance or as recommended by manufacturer to adequately waterproof each individual penetration.
 - b. All penetrations must be flashed individually. Two or more items ganged together in a flashing will NOT be permitted.
 - c. Flash penetrations using cold liquid applied reinforced membrane or proprietary fibrated flashing resin as recommended. Flashing shall be applied using factory pre-cut fleece wherever possible consisting of a reinforced deck skirt/target flashing applied over a reinforced vertical wrap finger flashing.
2. Drains:
 - a. Follow manufacturer's specific drain flashing details for use on traffic bearing waterproofing systems.
 - b. Flash drains using cold liquid applied membrane. Flashing shall consist of a membrane target extending minimum 12 in (300 mm) horizontally onto the substrate applied over a finger flashing extended into the prepared drain bowl a minimum of 3 in (75 mm) or terminated on exterior of trench drains where applicable.
 - c. At no time should the cold liquid applied membrane be installed to restrict or reduce the drain inlet in size.
 - d. For new drains, contractor shall include cost of all plumbing work, piping and connection to existing storm sewer system.
3. Flexible Penetrations:
 - a. Provide a weather-tight gooseneck set in manufacturers resin paste and secured to the deck.
 - b. Flash gooseneck penetrations using cold liquid applied reinforced membrane as recommended. Flashing shall consist of a reinforced target and reinforced vertical wrap finger flashing.
4. Walls, Curbs and Bases:
 - a. Flash all walls, curbs and bases using cold liquid applied reinforced membrane. Wherever possible extend flashing up and over tops of walls, curbs and bases so the membrane terminates on the opposite face of the vertical element.
5. Expansion Joints:
 - a. Flash all expansion joints with minimum two layers of manufacturers cold liquid applied reinforced membrane applied over an expansion joint compressible filler, expansion tube, backer rod and/or bond breaker tape as recommended by manufacturer.

6. Non-standard Flashing Details:

- a. When required, consult manufacturer for recommendations on flashing non-standard conditions, penetrations or protrusions.

3.10 FIELD MEMBRANE APPLICATION

- A. Refer to manufacturer's detail drawings, product data sheets and published general requirements for application rates and specific installation instructions.
- B. Install all flashing membranes before installing field membranes.
- C. The primed substrate shall be dry and free of any dust, loose particles or contaminants.
- D. Precut reinforcing fleece to conform to terminations, transitions and penetrations being flashed. Ensure a minimum 2 in (50 mm) overlap of fleece at side and 4 in (100 mm) at end-laps. Ensure the completed liquid applied membrane is fully reinforced.
- E. Mix waterproofing resin and catalyst approximately 2 minutes using a clean spiral agitator on slow speed or stir stick until evenly mixed. Do not aerate. Mix only the amount of primer that can be used within the application time.
- F. Apply the base coat of catalyzed waterproofing resin onto the substrate using a brush or roller, working the material into the surface for complete coverage and full adhesion.
- G. Immediately apply the reinforcing fleece into the wet base coat of waterproofing resin making sure the smooth side is up. Using a brush or roller, work the reinforcing fabric into the wet resin while applying the second coat of catalyzed waterproofing resin to completely encapsulate the fleece. Avoid any folds and wrinkles.
- H. At membrane tie-ins, clean cured membrane with specified cleaner before application of adjacent membrane.

3.11 WATERPROOFING CONTINUITY TESTING & QC EVALUATION

- A. Prior to applying bonding layer or overburden, contractor shall conduct a complete evaluation of the installed liquid applied waterproofing membrane and flashings which shall include visual inspection as well as an acceptable method for (low voltage, high voltage or water-flood) continuity testing.
- B. Immediately following evaluation and continuity testing, repair all deficiencies identified in liquid applied waterproofing membrane and flashings.
- C. Upon satisfactory completion of all required repairs, proceed with application of bonding layer installation.

3.12 BONDING LAYER:

- A. For all areas that are going to receive new direct contact cement, poured concrete, paving asphalt or mortar setting bed, apply a supplementary wearing coat of membrane manufacturer's cold liquid applied resin.

1. Using a lambswool roller, apply an even layer of cold liquid applied resin at the minimum consumption of 30 lbs/100 ft² (1.5 kg/m²) or as recommended by the membrane manufacturer and broadcast to excess with #1 (0.7 - 1.2mm) kiln-dried quartz aggregate into the wet resin to excess for full coverage.
2. Allow resin bonding layer to cure as recommended by the membrane manufacturer prior to continuing application or applying loads. Remove excess unadhered aggregate from surface by broom, vacuum or oil-free blower prior to apply overburden.

3.13 CLEAN UP

- A. Uncured resin is considered a hazardous material. Unused resin must be catalyzed and cured prior to disposal.
- B. Clean up and properly dispose of waste and debris resulting from these operations each day as required to prevent damages and disruptions to operations.

3.14 PROTECTION

- A. Upon completion of new work (including all associated work), institute appropriate procedures for surveillance and protection of finished work during remainder of construction period. Protect all areas where waterproofing membrane, wearing layer, surfacing and finish have been installed.

END OF SECTION

SECTION 07220

ROOF DECK INSULATION

PART 1 - GENERAL

1.1. SCOPE OF WORK

- A. Provide all labor, equipment, and materials to install roof insulation over the properly prepared deck substrate. See drawings and details for layout, configuration and dimensional requirements. **All components must be acceptable to the roof system manufacturer for the required roof warranty.**

1.2. RELATED SECTIONS

- A. Drawing and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specification Sections, Apply to this Section.
- B. Coordinate with roof system being applied over the insulation. Verify all installation is compatible with required warranty and make any required changes.

1.3. SUBMITTALS

- A. Submit under provisions of Section 01300 - Submittals.
- B. Product Data: Provide manufacturer's specification data sheets for each product in accordance with Section 01300.
- C. Insure compliance with roof system to be installed (warranty and uplift requirements).
- D. Provide a sample of each insulation type.
- E. Shop Drawings
 - 1. Submit manufacturer's shop drawings indicating complete installation details of tapered insulation system, including identification of each insulation block, sequence of installation, layout, drain locations, roof slopes, thicknesses, crickets and saddles.
 - 2. Shop drawing shall include: Outline of roof, location of drains, complete board layout of tapered insulation components, thickness and the average "R" value for the completed insulation system.
- F. Certification
 - 1. Submit roof manufacturer's certification that the insulation fasteners furnished and method of attachment, are acceptable to roof manufacturer for the conditions and deck for this project.
 - 2. Submit roof manufacturer's certification that insulation furnished is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's system warranty.
 - 3. Submit certification that insulation and fastening system furnished is Tested and Approved by Factory Mutual for I-90 Wind Up-Lift Requirements.

1.4. QUALITY ASSURANCE

- A. Fire Classification, ASTM E-108

1.5. DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.
- B. Store all insulation materials in manner to protect them from the wind, sun, and moisture damage prior to and during installation. Any insulation that has been exposed to any moisture shall be removed from the project site.
- C. Keep materials enclosed in a watertight, ventilated enclosure
- D. Store materials off the ground. Any warped or broken insulation boards shall be removed from the site.

PART 2 - PRODUCTS

2.1. APPROVED EQUIVALENT

- A. Contractor must submit any product not specified to Architect in order for product to be considered for approval. The Architect will notify Contractor, in writing, of decision to accept or reject request.

2.2. INSULATION MATERIALS

- A. Provide thicknesses of insulation as indicated (or as required for this application), provide combination of types (polyisocyanurate base layer with a perlite cap) and thicknesses to provide a complete system and to achieve the required slope.
 - 1. **RIGID INSULATION:** Polyisocyanurate rigid insulation board for use in roof assembly, conforming to the following:
 - a. Board Thickness: 1 ½" inches minimum thickness **unless otherwise indicated on drawings. See drawings for thickness information. Taper as indicated on drawings.**
 - b. Board Edges: square.
 - c. Manufacturer: Manufacturer as approved by roof manufacturer for roof assembly and deck.
 - 2. **COVER BOARDS - SEE THE "ACCESSORIES" PORTION OF MODIFIED BITUMINOUS SHEET ROOFING SPECIFICATION FOR COVER BOARD REQUIREMENTS FOR EACH TYPE OF APPLICATION.**
 - 3. **PERLITE ROOF INSULATION - PERLITE IS ONLY TO BE USED ONLY WHEN SPECIFICALLY INDICATED ON THE DRAWINGS OR NOTES. OTHERWISE, SEE THE MODIFIED BITUMINOUS SHEET ROOFING SPECIFICATION AND THE DRAWINGS FOR COVER BOARD REQUIREMENTS. THESE REQUIREMENTS ARE LISTED UNDER "ACCESSORIES" PORTION OF THE MODIFIED BITUMINOUS SHEET ROOFING SPECIFICATION.**
 - a. Qualities:
 - i. Rigid, factory produced perlite insulation board, uncoated. Thickness: to be used in combination with rigid polyisocyanurate insulation to form a tapered system when allowed as indicated on drawings or as required for proper application for required system.

Insulation components shall meet the following requirements:

- 1 UL , WH, FM requirements listed under Roofing Systems.
- 2 Federal Specification HH-I-529-B

2.3 RELATED MATERIALS

- A. Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated, matching insulation board or of perlite or organic fiberboard, as per the approved manufacturer.
 - 1. Acceptable Manufacturers
 - a. The Garland Company
 - a. Celotex
 - b. Schuller Roofing Systems
 - c. International Permalite, Inc.
 - d. Approved Equivalent
- B. Roof Board Joint Tape: 6" wide glass fiber mat, with adhesive compatible with insulation board faces.
- C. Asphalt: ASTM D-312, Type IV Steep Asphalt.
- D. Metal Deck Foam Adhesive: Type recommended by insulation manufacturer and approved by FM and UL for indicated ratings, if applicable.
- E. Fasteners
 - 3. Corrosion resistant screw fastener as recommended by roof membrane manufacturer.
 - 4. Factory Mutual Tested and Approved with 3 in. coated disc for 1-90 rating, to penetrate deck as required by insulation and roof deck manufacturer to achieve the required FM rating.

PART 3 - EXECUTION

3.1. INSPECTION OF SURFACES

- A. Roofing contractor shall be responsible for preparing and adequate substrate to receive insulation.
 - 1. Verify that work which penetrates roof deck has been completed.
 - 2. Verify that wood nailers are properly and securely installed.
 - 3. Examine surfaces for defects, rough spots, ridges, depressions, foreign material, moisture, and unevenness.
 - 4. Do not proceed until defects are corrected.

5. Do not apply insulation until substrate is sufficiently dry.
6. Broom clean substrate immediately prior to application.
7. Use additional insulation to fill depressions and low spots that would otherwise cause ponding water.

3.2. INSTALLATION

A. Attachment with Mechanical Fasteners

1. Approved insulation board shall be fully attached to the deck with an approved mechanical fastening system. As a minimum, the amount of fasteners shall be in accordance with manufacturer's recommendation for FM 1-90 approved system. Otherwise, a minimum of one fastener per two square feet shall be installed.
2. Filler pieces of insulation require at least two fasteners per piece if size of insulation is less than four square feet.
3. Spacing pattern of fasteners shall be as per manufacturer's recommendations to meet the FM requirements. Placement of any fastener from edge of insulation board shall be a minimum of three inches, and a maximum of six inches. Double the fasteners as required at roof edges and corners.
4. Minimum penetration into deck shall be as recommended by the fastener manufacturer. There is a one inch (1") minimum for metal, wood and structural concrete decks where not specified by the manufacturer. For gypsum and cement-wood fiber decks, penetration shall be determined from pull-out test results with a minimum penetration of one and one-half inches (1-1/2"). When the bottom of the deck is exposed, take care not to allow anchors to penetrate or damage the exposed finish.
5. See additional requirements listed in roof system specification.

B. Attachment by use of Adhesive

Adhesive for insulation and/or cover board in cold applied or torch applied applications (to acceptable decks): Equal to Insta Stik commercial roofing adhesive. Adhesive to be a single-component polyurethane adhesive. Must be compatible with insulation and/or cover boards. All application as recommended by the manufacturer for the given deck and material conditions.

END OF SECTION 07220

SECTION 07550

MODIFIED BITUMINOUS SHEET ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sheathing over deck surface.
- B. Insulation, roofing system and base flashings.
- C. Roof accessories.
- D. Roof drains and/or gutters.
- E. Deck preparation, replacement and/or repair.
- F. Warranty Requirements.
- G. Submittal Requirements.
- H. Wind Uplift Requirements

1.02 MANUFACTURER'S APPROVAL OF PRODUCTS AND INSTALLATION (SOME FURNISHED IN OTHER SECTIONS)

- A. Contractor shall verify prior to bid and provide a letter (during the submittal process) from the roofing manufacturer (along with the roofing submittal indicating): manufacturer's approval of all flashings, membrane(s), trim, perimeter metal, "gravel guards", curbs, vents, anchors, anchor pattern and roof accessories to be provided according to the Contract Documents and existing conditions. Manufacturer's approval will confirm the submitted roof system's compliance with manufacturer's roof system recommendations, the required warranty and FM I-90 conformance for the given conditions. All manufacturer's approvals are the responsibility of the Contractor.

1.03 RELATED SECTIONS

- A. Wood Blocking and Curbing
- B. Sheet Metal Flashing and Trim
- C. Re-roofing Preparation
- D. Roof Deck Insulation
- E. Gutters and Downspouts
- F. All applicable Roof Accessories
- G. Division 1 sections relating to product options, substitutions, submittals, shop drawings, etc.

1.04 REFERENCES

- A. ANSI/ASTM D312 – Asphalt Used in Roofing.
- B. ANSI/ASTM D2178 – Asphalt Impregnated Glass (Felt) Mat used in roofing and waterproofing.
- C. National Roofing Contractors Association (NCRA) – Roofing and Waterproofing Manual.
- D. Underwriters Laboratories (UL) – Fire Hazard Classifications.
- E. Factory Mutual (FM) – Wind Uplift Requirements.

1.05 SUBMITTALS

- A. Submit under all provisions of Division 1. It is the Contractor's responsibility to familiarize himself and comply with the requirements for: Shop Drawings, Product Data, Samples, Substitutions and Product Options and other similar sections and/or requirements.
- B. All submittals shall be specific to this project and indicate all actual conditions. Submittals shall not be general installation details for generic conditions that do not accurately reflect the conditions of this project.
- C. Shop Drawings: Indicate setting and anchorage plan for flat/tapered insulation if applicable. Indicate the anchorage requirements for insulation on the main field of the roof, roof edge conditions and corner conditions for the required uplift rating and the given deck type. Verify fastener type and penetration required for the conditions of this project.
- D. Manufacturer's Installation Instructions: Indicate special precautions required for the membrane(s), all flashings, insulation and anchorage required to meet the specified warranty, FM I-90 and all other requirements.
- E. Manufacturer's Certificate: The manufacturer of the roof system is to certify that the system (the submitted assembly for this particular project) meets or exceeds specified requirements of design and warranty as required for this project by the manufacturer. Also, certify that the "system" (project specific submitted assembly) meets the uplift requirements of Factory Mutual Engineering Corporation (FM) I-90 classification. All components of roof systems must be approved by manufacturer, as a system, in writing. The Contractor is responsible for making all changes necessary to meet these requirements.
- F. Submit manufacturers' literature for all system components for approval. All components are to be submitted and approved as a "system" that meets uplift and warranty requirements.
- G. Provide a copy of the required warranty, for this system, as approved by the manufacturer.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in the design and manufacturing the products specified in this section with ten year documented experience. This company must be able to provide the required warranty and meet all other design requirements (FM uplift requirements, UL fire resistance, ASTM testing requirements, NRCA recommendations, etc.)
- B. Applicator: Company specializing in performing the work of this section with five years documented experience as an approved, licensed, or authorized applicator by the roof system manufacturer for the required level of warranty, installation and all other stated requirements.
- C. Work of this section to conform to NCRA Roofing and Waterproofing Manual, Contract Documents, Drawings and manufacturer's instructions.

1.07 REGULATORY REQUIREMENTS

- A. Underwriters Laboratories, Inc. (UL): Conform to Class A fire hazard classification and U.L. Assembly P225.
- B. Factory Mutual Engineering Corporation (FM): Roof assembly classification, of Class 1 construction, wind uplift requirement of I-90 and in accordance with FM construction bulletin #1-28.

1.08 PRE-INSTALLATION CONFERENCE

- A. Convene one week prior to commencing work of this Section.
- B. Review installation procedures (as dictated by construction documents and approved shop drawings) and coordination required with related or existing construction.
- C. Roofing contractor must accept deck substrate and drainage conditions as acceptable prior to beginning roof work. It is the contractor's responsibility to make all necessary corrections to the deck before beginning work as recommended for the required warranty and to meet FM I-90 uplift requirements.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of the Quality Control, Material and Equipment, Product Handling and similar Specification Sections.
- B. Deliver products in manufacturer's original containers, dry, undamaged, seals and labels intact.
- C. Store products in weather protected environment, clear of ground and moisture.
- D. Stand roll materials on end.
- H. No loose items/materials shall be left unsecured on the roof at the end of the work day.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing membrane during inclement weather ambient temperatures below 32 degrees F or above 100 degrees F (follow manufacturer's recommendations for additional or more stringent recommendations).
- B. Do not apply roofing membrane to damp or frozen deck surface.
- C. Do not expose materials that vulnerable to weather, water or sun damage in quantities greater than can be weatherproofed during same day.

1.11 COORDINATION

- A. Coordinate the work with installing associated metal flashings and all other roof accessories as the work of this Section proceeds.
- B. Coordinate with other trades for phases of work to avoid damage to roof surface and insulation. Also, coordinate with other trades to allow for the proper installation of all work.
- C. Coordinate with mechanical and electrical requirements for roof penetrations and acceptability of flashings, heights of curbs, acceptability of penetrations, etc. It is the Contractor's responsibility to raise all curbs (and associated equipment) as recommended by roof manufacturer to achieve the recommended flashing condition. The Contractor is also responsible for the service connections to all electrical/mechanical conditions located on the roof.

1.12 WARRANTY

- A. Provide two-year contractors' unlimited warranty under provisions of all appropriate Division 1 Specification Sections to be supplied by roofing contractor to cover entire roof

assembly including flashings and other accessories (labor and materials) for water-tightness.

- B. Cover damage to roofing system components resulting from failure to prevent penetration of water through any component of the roof system. Warranty must cover labor (workmanship) and materials. The completed roof shall be inspected by the manufacturer prior to issuing this warranty.
- C. Project Warranty (Manufacturer): Provide written warranty, signed by Manufacturer of primary roofing materials and his authorized installer, agreeing to replace/repair defective materials, installation and workmanship. Warranty must be a no dollar limit, watertightness warranty on entire roof system (all components, accessories, etc.). Warranty must meet all additional requirements set forth in all appropriate Division 1 Specification Sections (Warranties and Bonds, Contract Closeout, etc.)

All sheet metal, flashing, trim, counterflashing, parapet caps, and similar items covered by or listed in the specifications or otherwise shown in the contract documents must be covered by the roof system manufacturer's 20-year warranty.

Warranty period is 20 years after date of final acceptance of project, no dollar limit.

Manufacturer shall review project prior to bidding. Any condition which may negatively affect the warranty must be identified by the contractor prior to bidding so that nonconforming condition can be corrected or otherwise accounted for. No exceptions to the required warranty will be allowed. Otherwise, the Contractor will be responsible for all corrections.

PART 2 PRODUCTS

2.01 MANUFACTURERS OF MATERIALS AS PART OF A TOTAL ROOF SYSTEM

- A. Acceptable manufacturers of roof systems that must meet the requirements as defined in these Contract Documents (specifications and drawings):

THIS APPLICATION WILL BE FOR A MANUFACTURER'S TWO PLY SYSTEM CONSISTING OF BASE SHEET(S) AND CAP SHEET AS DEFINED HEREIN AND MEETING THE WARRANTY AND PERFORMANCE REQUIREMENTS AS DEFINED.

HOT MOPPED

1. **Soprema**, www.soprema.us - Elastophene sanded (base), Sopralene 180 FR GR (cap), Sopralast 50 TV ALU Sanded flashing.
2. **Elevate**, www.holcimelevate.com – SBS Base (base), SBS FR (cap), Metal Flash AL flashing.
3. **Siplast** – Paratech Glass Base (base), Paratech 180 FR (cap), Veral Aluminum flashing

TORCH APPLIED

- 1 **Soprema**, www.soprema.us – Elastophene Flam (base), Sopralene Flam 180 FR GR (cap), Sopralast 50 TV Aluminum flashing
- 2 **Elevate**, www.holcimelevate.com – SBS Glass Torch Base, SBS FR Torch (cap), Metal Flash AL flashing
- 3 **Siplast** – Paratech Glass Base TG (base), Paratech 180 FR TG (cap), Veral Aluminum flashing

These membranes were chosen as equals based on ASTM designation, thickness and weight. If the manufacturer requires a superior/premium membrane to meet any of the requirements listed in this specification, then it is the Contractor's responsibility to provide this (and any other accessories/materials) in order to meet these requirements.

- B. It is the Contractor's responsibility to supply and install any and all additional components of the manufacturer's roof system for this particular application (as required for the warranty and performance requirements) whether specifically defined or not. This includes items such as: slip sheets, vapor barriers, ice and water shield in certain locations, rosin paper, specific flashing membranes, sheathing, special anchors/adhesives, etc. It is the Contractor's responsibility to verify such items (along with the primary roofing components) and allow for these materials and installation in their bid.

2.02 MEMBRANE MATERIALS

- A. Membrane: Asphalt and polymer modifiers of styrene-butadiene-styrene (SBS) type reinforced with non-woven fiber glass and/or polyester, as specified; smooth surfaced and mineral granule; hot mop applied unless otherwise noted. Cap sheet must be fire resistant "FR" with a minimum Class A rating.
- B. Membrane (when noted): Aluminum foil clad, high performance, modified bitumen cap sheet. This sheet is to consist of a fiberglass scrim/fiberglass mat composite impregnated and coated with a high quality styrene-butadiene-styrene (SBS) modified bitumen and surfaced with a protective aluminum coating. Product must be equal to Soprema Sopralast 50 TV Alu.
- C. Fluid/Liquid Applied Flashing Membrane- One component asphalt extended polyurethane resin used in conjunction with 100% polyester reinforcement. System requires base layer resin, embedment of polyester reinforcement into wet base layer resin, top layer resin completely covering and encapsulating reinforcement. After drying finish layer of resin is applied and granules broadcast into wet finish layer. (coordinate with Architect to verify if granules are required for this particular application) Fluid/Liquid applied Flashing System must be equal to Soprema's Alsan Flashing System.

Fluid/Liquid Applied Flashing System may be used when specifically called for by the Architect or when approved by the Architect for particular applications. In some cases Fluid Applied flashings may be necessary due to existing conditions on a roof that physically do not work well for traditional flashing membranes or where the vertical height of flashing is restricted by existing conditions. Consult with the Architect's office for approval for use in any conditions in question. The liquid flashing system and application thereof must be installed as recommended by the manufacturer as necessary for the required warranty of the overall roof system.

- D. Finish System (equal to Alsan Finish by Soprema): two component, chemically cured aliphatic urethane. Used for repair, touch-up for membranes and/or as a finish coat for Alsan Flashing System. All handling, mixing and preparation as recommended by the manufacturer for the given conditions and substrate. Use quality equipment for application as recommended. Mask off the edges of the area which the finish is to be applied to create a sharp, neat edge and to protect surfaces not intended to receive the finish. Follow manufactures recommendations for flashing height.

2.03 BITUMINOUS MATERIALS

- A. Asphalt bitumen: ANSI/ASTM D312, Type 4. Asphalt shall be low odor (or low fume) type with an additive that aids in eliminating the odor rather than just masking it. This product shall not alter any other physical characteristics of the asphalt and shall not reduce the flash point.
- B. Asphalt Primer: ANSI/ASTM D41.

2.04 INSULATION

- A. Roof Insulation System (Typical Roof): Polyisocyanurate rigid insulation with manufacturers' standard facing laminated to both sides. R-values (or thicknesses) as designated at mean temperature indicated, after conditioning. All attachment, anchorage and accessories required to meet FM 1-90 wind uplift requirements.
- B. Roof System: **See drawings and details for complete requirements.**

2.05 BASE FLASHINGS

- A. Base Flashing(s): Flexible sheet flashings, SBS modified bitumen, type as compatible with membrane sheeting and for this application's specific conditions. Number of layers as required by system (manufacturer's requirement for wind uplift and warranty).

2.06 SURFACING

- A. Mineral Surfacing (unless noted otherwise): Fine mineral granules, shop applied, color – **WHITE.**
- B. Dress all bleed-outs and seams with matching mineral surfacing.

2.07 CANTS

- A. Cant: Asphalt impregnated wood fiberboard, pre-formed to 45 degree angle. Consult manufacturer's recommendations for additional requirements or materials for cant strips as necessary for warranty and FM wind uplift requirements.

2.08 ACCESSORIES

- A. Mechanical Fasteners: Appropriate for purpose intended and approved by Factory Mutual and system manufacturer; length required for thickness of material as necessary for FM I-90. It is the Contractor's responsibility to verify and coordinate all anchorage with exposed interior decks, finishes, electrical, mechanical equipment or ducts, etc. to ensure that no items are penetrated or otherwise damaged.
- B. Prefabricated Control of Expansion Joint Flashing: Sheet butyl reinforced with closed cell urethane foam backing seamed into metal flashing flanges, including sheet butyl counter-flashing each side. Provide pre-formed terminations and accessories as required to meet warranty requirements. See drawings and details for any additional specific expansion joint requirements.
- C. Coating of Fibrated Aluminum Roof Coating (also referred to as "Silver Alumanation" paint or coating) as indicated on the drawings. Properly clean surface of all loose debris and mastics that would prevent proper adhesion. All preparation of existing surfaces are to be in compliance with the manufacturer's recommendations. Apply in areas indicated in construction documents and in thicknesses recommended by manufacturer with proper mesh reinforcement. Prepare all surfaces and apply a protective coating of Fibrated Aluminum Roof Coating as recommended by the manufacturer. Equal to Fibrated Aluminum Roof Coating by Johns Manville.
- D. Wall Flashing and other vertical joints: Manufacturer recommended foil faced flashing membrane as required for warranty (unless a particular material is specifically noted). See details for application.

- E. **Cover Boards** are specified per NRCA and manufacturer's recommendations. When cover boards are mechanically attached, hot asphalt or insulation adhesive shall be used to attach subsequent layers of insulation and cover boards.
1. For Hot Mopped Applications: Soprema – ¼" Sopraboard; Firestone – ½" Dens Deck Prime adhered with insulation adhesive; Johns Manville – ½" Dens Deck Prime adhered with insulation adhesive.
 2. For Torch Applications: Soprema – ½" Dens Deck Prime applied with insulation adhesive; Firestone – 1/4" Dens Deck Prime adhered with insulation adhesive; Siplast – 1/4" Dens Deck Prime adhered with insulation adhesive.
 3. See drawings, notes and details for additional, specific information that may supersede these requirements.
 4. All installation and anchorage to be as recommended by the manufacturer for the given deck type and other conditions. All anchorage must also comply to wind uplift requirements.

In some cases these materials may also be required as a cover board/sheathing on vertical surfaces for the proper attachment of the modified bitumen roofing/flashing. In these cases a mechanical attachment may be required (depending on the surface material). All attachment is to be as recommended by NRCA and the manufacturer for the given condition and must comply with the required uplift requirements. See the details and drawing notes for additional information.

- F. Adhesive for insulation and/or cover board in cold applied or torch applied applications: Equal to Insta Stik commercial roofing adhesive. Adhesive to be a single component polyurethane adhesive. Must be compatible with insulation and/or cover boards. All application as recommended by the manufacturer for the given deck and material conditions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work and that the deck is supported and secured. Correct all deficiencies before proceeding with work.
- B. When re-roofing over existing construction, it is the Contractor's responsibility to inspect and become thoroughly familiar with existing conditions. It is the Contractor's responsibility to verify that the existing roof deck and all associated conditions meet the roofing manufacturer's recommendations. Correct any non-complying conditions to the satisfaction of the roof system manufacturer for the required warranty and other performance requirements.
- C. Verify that the installation of all materials (membrane, flashings, or any other accessories/components) will be installed in such a manner that any existing flashing conditions, masonry weeps, drains, etc. will not be covered or compromised. For example; do not cover existing masonry weeps or restrict (make smaller) roof drains or scuppers). It is the Contractor's responsibility to alter any details so that they will not negatively affect any flashing, moisture or drainage condition. All such details must be coordinated with the roof manufacturer so that the required warranty will not be affected.
- D. Verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains, valleys, or eaves and correct all conditions as recommended by the roof system manufacturer and required by the contract documents.
- E. Verify deck surfaces are dry and free of snow or ice. Verify flutes of metal deck are clean and dry. Confirm dry deck by moisture meter with 12 percent moisture maximum.

- F. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, and cant strips are in place. Penetrations, which are not high enough to maintain an 8" projection from finished roof are to be extended. Correct all nonconforming conditions.
- G. It is the Contractor's responsibility to verify that the roofing bitumen kettle arrives on the job site in a clean, operable and complete condition. No old bitumen materials are to be brought to the job site in the kettle. All temperature controls and accessories shall be operable and properly calibrated. The kettle shall have an operable thermometer to ensure that no asphalt is to be heated within 10 degrees F of its flash point. Kettles are not allowed on the roof. Operable and inspected fire extinguishers must be readily available at all times at the kettle location.
- H. Safety and protection of property is the Contractor's responsibility. All workers shall be required to perform all work in compliance with industry standards to protect themselves and all construction. All workers are to be provided and wear proper clothing and protection. No flammable liquids are to be stored on the roof.

3.02 PREPARATION-DECK

- A. Core information (when provided) is available for the convenience of the Contractor and to aid the Professional in the design of the new roof. Core information (and existing roof/insulation thicknesses) are believed to be accurate; but, may not be correct in all cases. Additionally, any original drawing information (when made available to the Professional) is also shown on the drawings/details. However, the Contractor is responsible for verifying any and all conditions that will affect his work or pricing. The roof will be made available for the Contractor to core and otherwise inspect as he feels is necessary. If the Contractor chooses to not visit the site and/or verify any conditions, this does not relieve the Contractor of his responsibility to properly prepare the roof (and remove/dispose of materials) as necessary and install the new roofing system as described.
- B. On surfaces where a non-typical or non-standard roofing material or coating exists, this material/coating must be completely removed prior to any installation that requires adhesion to this surface. If any remnants remain, the contractor is solely responsible for obtaining written permission from the roofing material manufacturer that will be supplying the warranty. This written permission must state that this existing condition is acceptable to the manufacturer and will not alter the required warranty. The manufacturer must also verify in writing that the remnants of the material are completely compatible with the new materials that are being installed.
- C. On nailable decks loose lay base sheet and mechanically fasten to deck. In some re-roof conditions this base sheet may have to be installed over 9 mil min. rosin paper to prevent bitumen materials from bleeding through the roof deck, see drawings. Embed into flood coat mopping of hot bitumen the first (and second, if applicable) layer of insulation in accordance with insulation manufacturer's instructions. If applicable, lay second layer of insulation with joints staggered from first layer.
- D. Lay insulation boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking, adjacent insulation boards and around any penetrations through roof. No voids shall exist in insulation that will cause "bridging" or voids in the roof membrane.
- E. On metal decks, place insulation perpendicular to deck flutes with edges over flute surface for bearing support. On existing decks (re-roof projects), place insulation perpendicular to decking or per manufacturer's recommendations for existing substrate conditions. Place

fasteners as required by manufacturer of insulation, roof, and as recommended by FM for an I-90 rating.

- F. Apply no more insulation than can be sealed with membrane in same day.

3.03 MEMBRANE APPLICATION

- A. Lay one ply base sheet at a time, coated side down. Lap sides and ends in accordance with membrane manufacturer's instructions. Apply all following membranes in a similar manner, following all manufactures recommendations for the system.
- B. Equivalent Temperature of Bitumen at Point of Application: Within 25 degrees F of bitumen rating labeled on bitumen container.
- C. Apply membrane; seal seams and ends permanently waterproof. Apply the asphalt at the recommended rate to ensure that all membranes are properly adhered
- D. Apply membrane smooth, free from air pockets, wrinkles, tears, or fishmouths.
- E. Extend membrane up cant strips and minimum of 6 inches onto vertical surfaces or per manufacturer's recommendations, if greater. Never extend roof materials up a masonry wall in such a manner that will cover masonry weeps or allow weeps to drain under the roof surface.
- F. Install waterproof cut-off to membrane at end of day's operation. Remove cut-off before resuming roofing.
- G. Mop and seal membrane around roof penetrations.
- H. No loose items or materials are to be left unsecured on the roof at the end of the work day.
- I. Take all precautions to prevent the ignition of combustible materials during all roofing activities (in particular, torching activities). Install materials using the techniques recommended by the NRCA Roofing Torch Applicator Program and the Asphalt Roofing Manufacturers Association. Application must comply with NFPA 241, OSHA 29 CFR: 1910, 1910.12, 1926.16 & 1926. Fully operational and inspected fire extinguishers (type and size as recommended) must be readily available at the point of torching activities.

ADDITIONAL REQUIREMENTS FOR TORCH APPLICATION

- J. Only NRCA/MRCA CERTA certified roofing applicators are allowed to operate any torching equipment. It is the Contractor's responsibility to verify that all such applicators maintain and are currently carrying a valid Certified Roofing Torch Applicator (CERTA) card. All personnel on the roof during torch applications must be properly trained to use a fire extinguisher. Provide a fire watch for a minimum amount of time after torch operations as necessary to ensure that no potential ignition conditions exist at the end of each shift and during breaks. Coordinate access to the underside of the roof as necessary to inspect for ignition sources/conditions. Fire safety is the Contractor's responsibility. Do not torch in areas of poor and/or no visibility where voids and or penetrations may exist which could allow a torch flame to ignite combustible materials hidden from view or within the underside of the roof deck or building interior. Use cold applied materials in these areas whenever necessary and per manufacturer's printed instructions.
- K. Torches and other open flame equipment must be specifically designated for use in the application of modified bitumen materials and approved by the modified bitumen sheet manufacture for use with their product. Open flame equipment must not be ignited (burning) when left unattended. Provide and maintain an operable fire extinguisher next to

each and every piece of open flame equipment on the roof. These listed fire safety requirements are intended to be the minimum expected for this project. The Contractor is responsible for any and all additional requirements necessary for fire safety for the specific conditions that exist in this project. The Contractor is responsible for acquiring any permits, approvals and/or inspections that are required by any local authority having jurisdiction. Fire safety is the Contractor's responsibility.

- L. Ensure substrate membrane surfaces are warmed, either naturally or by torch during the installation. Apply heat evenly to the underside of the roll membrane being installed and exposed side lap area of previously installed sheet. Provide for slight, uniform flow of bitumen in front of roll and full width of roll as the material is being rolled out or set into place. Apply uniform and positive pressure to ensure membrane is fully adhered and all laps are sealed. Prior to forming lap over granulated surfaces, embed granules of the receiving sheet by heating and troweling-in the granules to form a uniform black compound surface. Roll all lap areas immediately after forming lap. Avoid overheating the membrane or burning through to the membrane reinforcement. Inspect and insure that all lap areas are fully sealed.

3.04 FLASHINGS AND ACCESSORIES

All edge metals must be tested and certified in compliance with ANSI/SPRI ES-1 and IBC 2006. Contractor shall provide certification and testing of all edge metal conditions to the Architect as part of the submittals. All "special" shapes (radiused, decorative, etc.) shall be pre fabricated.

- A. Apply surfaced membrane base flashings to seal membrane to all vertical elements. Perform no work in such a manner that will cover masonry weeps and allow weeps to drain. Perform all work in such a manner that will allow mechanical, electrical, ventilation, moisture barriers, etc. to function properly and meet the manufacturer's recommendation for minimum flashing height. Coordinate all work with other trades and existing conditions. Any variation must be approved by Architect and manufacturer prior to application.
- B. Secure at 4 inches min. and additionally as required for required wind uplift rating.
- C. Install all roof expansion joints in accordance with manufacturer's instructions and as detailed.
- D. Coordinate installation of related flashings with other roof system components, existing construction, other trades, etc. Properly tie-in to other roof systems and types.
- E. Seal flashings and flanges of items penetrating membrane.

3.05 CLEANING

- A. Remove bituminous markings from finished surfaces. Clean all splatter, spills, etc. from all surfaces and adjacent materials/construction.
- B. In areas where finished surfaces are soiled by work of this Section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.
- C. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.06 PROTECTION

- A. Protect building surfaces against damage from roofing work.
- B. Where traffic must continue over finished roof membrane, protect surfaces.

- C. Install traffic pads to and around all roof-mounted equipment from access point unless shown otherwise.

END OF SECTION 07550

SECTION 07565

PREPARATION FOR RE-ROOFING

PART 1 - GENERAL

1.1. SCOPE OF WORK

- A. Preparation of existing surface to receive new roof system while maintaining weathertight conditions.

1.2. PRE-INSTALLATION CONFERENCE

- A. Refer to Project Meeting requirements
- B. Review installation procedures and coordination required with related work.

1.3. ENVIRONMENTAL REQUIREMENTS

- A. Do not remove existing roofing system when weather conditions threaten the integrity of the building contents or intended continued occupancy. Maintain continued temporary protection prior to installation of the new roofing system.

1.4. PROTECTION

- A. It shall be the Contractor's responsibility to respond immediately to correction of roof leakage during construction. A four (4) hour time limit shall be given from the time of notification of emergency conditions. In the event of water penetration during rain or a storm, the Contractor shall provide for repair or protection of the building contents and interior. If the Contractor does not respond or cannot be contacted, the Owner will affect repairs or emergency action and the Contractor shall be back charged for all expenses and damages, if any.

1.5. SCHEDULING

- A. Schedule work to coincide with commencement of installation of new roofing system

PART 2 - EXECUTION

3.1. EXAMINATION

- A. Roofing Contractor to verify existing site conditions, including roof dimensions.
- B. Verify that existing roof surface is clear and ready for work of the Section.
- C. Verify that the installation of all materials (membrane, flashings, or any other accessories/components) will be installed in such a manner that any existing flashing conditions, masonry weeps, drains, etc. will not be covered or compromised. For example; do not cover existing masonry weeps or restrict (make smaller) roof drains or scuppers). It is the Contractor's responsibility to alter any details so that they will not negatively affect any flashing, moisture or drainage condition. All such details must be coordinated with the roof manufacturer so that the required warranty will not be affected.

3.2. MATERIALS REMOVAL

- A. Remove all gravel, membrane, cant strips, base flashings, shingles, underlayments, etc. and any other items necessary for the installation of the new roof system. In addition, completely removal of all nails and other debris to leave a smooth, even surface for re-roofing.

Core information (when provided) is available for the convenience of the Contractor and to aid the Professional in the design of the new roof. Core information (and all existing roof information, insulation thicknesses, etc) are believed to be accurate; but, may not be correct in all cases. Additionally, any original drawing information (when made available to the Professional) is also shown on the drawings/details. However, the professional cannot attest to the accuracy of these drawings or whether the building was actually constructed as designed. As a result, the Contractor is responsible for verifying any and all conditions that will affect the work necessary to achieve the scope of work and/or the associated pricing. The roof will be made available for the Contractor to core and otherwise inspect as he feels is necessary. If the Contractor chooses to not visit the site and/or verify any conditions, this does not relieve the Contractor of his responsibility to properly prepare the roof (and remove/dispose of materials) as necessary for the installation of the new roofing system as described.

On surfaces where a non-typical or non-standard roofing material or coating exists, this material/coating must be completely removed prior to any installation that requires adhesion to this surface. If any remnants remain, the contractor is solely responsible for obtaining written permission from the roofing material manufacturer that will be supplying the warranty. This written permission must state that this existing condition is acceptable to the manufacturer and will not alter the required warranty. The manufacturer must also verify in writing that the remnants of the material are completely compatible with the new materials that are being installed.

- B. Under certain conditions, it will be necessary and desirable to incorporate one or more of the following methods for removal of dirt, silt, gravel, debris, and roof membrane from the roof surface in order to preserve the ecology, eliminate unsightly conditions, and protect the building surfaces:
1. Roof vacuum systems.
 2. Crane and hopper with dump truck system.
 3. Enclosed chutes with protective shrouds on the building and ground surfaces.
- C. All debris removed from the roof shall be transported from the roof via proper chutes into dumpsters or trucks, and this debris shall be removed from the premises when vehicles are full at the Contractors cost. No debris shall be transported from the area being worked on over a previously finished roof without proper protection that is approved by the roof system manufacturer that carries the warranty and the owner/professional. Prior approval is required before working on or transporting over a previously finished roof area
- D. All roof equipment and supplies not in use or being staged will be parked on the column lines (or other structural support lines) on with proper protection underneath.

END OF SECTION 07565

SECTION 07620

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cap, roof, sill flashings, counter-flashing, and related accessories.
- B. Fascias, gravel guards, drip-edges, coping, scuppers, perimeter metal, edging, parapet caps, pre-finished metal coverings (cladding), etc. In general, this section refers to all items that are referenced as prefinished metal.
- C. Counterflashings over base flashings, curbs, vent stacks, etc.
- D. Cladding or wrapping around wood or metal framing components.

1.02 QUALITY ASSURANCE

All sheet metal, flashing, trim, counterflashing, parapet caps, and similar items covered by or listed in this section or otherwise shown in the contract documents must be covered by the roof system manufacturer's 20-year warranty.

- A. Perform Work in accordance with the following:
 - 1. SMACNA - Architectural Sheet Metal Manual.
 - 2. National Roofing Contractors Association (NRCA) – Roofing and Waterproofing Manual.

1.03 STORAGE AND HANDLING

- A. Stack preformed and pre-finished material to prevent twisting, bending, or abrasion, and to provide ventilation.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

- A. Aluminum Sheet: ASTM B209, 3003 alloy, H14 temper, .040 inch thick, **Kynar color to match roof color as approved by Architect's office and the Owner.**
- B. Precoated (kynar) galvanized steel roofing flashings and accessories that are part of the roof system or approved by the manufacturer for use with the roof system.
- C. Copper Sheet: as indicated on drawings, in accordance with SMACNA, compatible with manufacturer's roof system for required warranty.
- D. All sheeting shall be compatible with the system that it is being in (roofing materials, aluminum storefront system, etc.) and shall be approved by system manufacturer.

2.02 ACCESSORIES

- A. Fasteners (exposed): same material and finish as flashing metal and as recommended by manufacturer.

- B. Underlayment: Min. of 30# roofing felt and red rosin paper (where necessary or required) or more stringent requirements per manufacturer's warranty.
- C. Protective Backing Paint: Zinc chromate alkyd or as required by manufacturer.
- D. Sealant: Polyurethane type, specified in Section 07900 approved by system mfr.
- E. Reglets: Surface mounted of same material as adjacent flashing or metal; face and ends properly hemmed and sealed.

2.03 FABRICATION

- A. Form components true to shape, accurate in size, square, and free from distortion or defects. Form pieces in longest practical lengths.
- B. Fabricate cleats and starter strips of same material as sheet, minimum 6 inch wide, interlockable with sheet.
- C. Hem exposed edges and seams on underside 1/2 inch; miter and seam corners. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- D. Form material with cover plate seam.
- E. Fabricate corners in one piece, 6 inch long legs; seam for rigidity, seal with sealant.
- F. Form sheet metal pans with upstand, and flanges. Fill pans watertight with plastic cement.
- G. All components, configurations, and dimensions are to comply with manufacturer's recommendations.

2.04 FINISH

- A. Back-paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil .

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Verify existing and proposed roof openings, curbs, pipes, sleeves, ducts, or vents through substrate are solidly set, cant strips and reglets in place, and nailing strips located. Make all required adjustments, alterations and installations to accommodate all existing and proposed conditions as required by the system being installed.

3.02 INSTALLATION

- A. Conform to drawing details included in the SMACNA manual.
- B. Install starter and edge strips, and cleats.
- C. Install surface mounted reglets. Seal top of reglets with sealant. Insert flashings to form tight fit. Seal flashings into reglets with approved sealant.
- D. Secure flashings in place using concealed fasteners seal all edges.
- E. Apply plastic cement compound between metal work and felt flashings.

- F. Fit components tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- G. Seal metal joints watertight.

END OF SECTION 07620

SECTION 07631

GUTTERS AND DOWNSPOUTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pre-coated Aluminum Gutters and downspouts.
- B. Copper Collector Heads, downspouts and associated straps and flashing. (where indicated)
- C. Pre-cast concrete splash pads.

1.02 RELATED SECTIONS

- A. See related roof specification sections for coordination of all installations.

1.03 REFERENCES

- A. ASTM B209 - Aluminum and Aluminum Alloy Sheet and Plate.
- B. SMACNA - Architectural Sheet Metal Manual.

1.04 SUBMITTALS

- A. Shop Drawings: Indicate locations of conductor heads, downspouts, configurations, jointing methods, fastening methods, locations, and installation details.
- B. Product Data: Provide data on prefabricated components.
- C. Samples: Submit one sample, 6 inches long illustrating component design, finish, color, and configuration.

1.05 QUALITY ASSURANCE

- A. Conform to SMACNA Manual for sizing components for rainfall intensity determined by a storm occurrence of a 1 in 10 year event, unless specifically noted. See details for sizing and configuration.

1.06 REGULATORY REQUIREMENTS

- A. Conform to standard building code for size and method of rain water discharge.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site as required by contract documents.
- B. Stack preformed and pre-finished material to prevent twisting, bending, or abrasion, and to provide ventilation.
- C. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

1.07 COORDINATION

- A. Coordinate work with all related trades.
- B. See drawings and details

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. As Approved

2.02 MATERIALS

- A. 0.040 gauge aluminum, kynar prefinished as shown on detail in drawings. Color to be selected by Architect **to match roof color as approved by Architect's office and the Owner**
- B. 20 oz. copper unless otherwise noted.

2.03 COMPONENTS

- A. SMACNA **Style as detailed or selected by Architect, in some cases match existing unless otherwise notes, pre-finished** metal or per drawings.
- B. Downspouts: Round or rectangular sections (see drawings) section (to match existing), or per drawings.
- C. Collector head: **kynar prefinished of material identical to downspouts, see drawings.**
- D. Splashblocks: Pre formed concrete at each downspout, where downspout(s) are not connected to drainage system. Where splashblocks are placed on a roof surface, a walkway pad is to be placed underneath to protect the roof surface.

2.04 ACCESSORIES

- A. Anchoring devices: To be same metal and finish as downspouts and shall adequately secure downspouts to walls to match existing if applicable.
- B. Downspout Support: To be strapped in accordance with manufacturer's recommendations with matching metal.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work, make all corrections as necessary.

3.02 INSTALLATION

- A. Install gutters and downspouts and accessories in accordance with manufacturer's instructions.
- B. Seal metal joints watertight.

END OF SECTION 07631

SECTION 07700
ROOF SPECIALTIES AND ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

A. Provide the following:

1. Provide new lead pipe flashing at vent stacks
2. Provide new flashing and accessories at heater (hot) stacks.
3. Provide new premanufactured curbs as necessary or noted.
4. Provide new expansion joints, expansion joint covers and accessories at all building expansion joints.

B. Related Sections: The following Sections (if applicable) contain requirements that relate to this Section:

1. Section for: Applicable roof deck, Unit Masonry, Metal Fabrications, Sheet Metal Flashing and Trim, Wood Blocking and Curbing, Exterior Insulation & Finish System, Specific Roofing Type Specifications, Flashing and Sheet Metal, Joint Sealers, Aluminum Entrances & Storefronts

1.02 SUBMITTALS

A. Submit the following in accordance with Conditions of Contract and Division 1 Specification Section 01300.

B. Product data including manufacturer's technical data, installation instructions and general recommendations for each product specified. Include data substantiating that materials and performance comply with requirements.

C. Shop drawings indicating layout, joining, profiles, accessories, anchorages, flashing connections, and relationship to supporting structure and to adjoining roof and wall construction.

D. Samples for verification purposes of each type of exposed finish required, prepared on samples of size indicated below and of same thickness and material indicated for final unit of work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected. Provide samples of not less than the following sizes:

1. Length: 8 inches.

1.03 QUALITY ASSURANCE

A. Insurance Requirements: Provide fascia systems complying with Factory Mutual requirements matching the specified roofing system or as recommended for the zone of the work being performed.

B. Industry Standards: Provide products which comply with applicable recommendations of SMACNA Architectural Sheet Metal Manual, except as otherwise indicated.

1.04 JOB CONDITIONS

- A. Coordinating work of this Section with adjoining work for proper sequencing of each installation to ensure best possible weather resistance and protection of materials and finishes against damage.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All materials shall be at a minimum as recommended by the roofing manufacturer for its specified use. Otherwise, follow the recommendations as outlined below.
 - 1. Aluminum Sheet: Alloy and temper recommended by manufacturer for use intended and as required for proper application of finish indicated but with not less than 26 gauge as specified in ASTM B 209 for 5005-H15.
 - 2. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, hot dipped galvanized in accordance with ASTM A 525, with G90 coating designation, mill phosphatized.

2.02 MISCELLANEOUS ITEMS

- A. Exposed Fasteners: Stainless steel, nonmagnetic, of type and size recommended manufacturer for product and application indicated. Match finish of exposed heads with material being fastened.
- B. Concealed Fasteners: Same metal as item fastened or other noncorrosive metal as recommended by manufacturer. Expansion anchors are required at all masonry connections.
- C. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.
- D. Foam Rubber Seal: Manufacturer's standard foam.
- E. Ice and Water Shield: Equal to Grace Ice and Water Shield. Cold applied, self adhering membrane composed of a high strength polyethylene film coated on one side with a layer of butyl rubber. Install in areas noted on drawings or as recommended by the roof system manufacturer.

2.03 ASSEMBLIES

- A. Curb assemblies of all welded 14 gage galvanized steel construction. 1-1/2 inch fiberglass sound attenuating/ thermal insulation. Custom sized to match roof pitch indicated. Minimum curb height: 8" on shortest vertical. 2" x 2" treated wood nailer. 2" self flashing base for single pitch. Suitable for specified roof application for the project conditions.
 - 1. Subject to compliance with requirements, provide curbing from one of the following:
 - a. L M Curbs; Longview TX
 - b. FastCurbs; Claremore OK
 - c. Fields Company LLC; Tacoma WA

- B. Parapet Wall Coping Interlocking Multi-Part System: Manufacturer's system consisting of aluminum sheet to profile and of thickness indicated, minimum 24 gage (nominal 0.0276-inch-thick, unless otherwise noted), zinc-coated steel anchor plate or cleat located at coping joint, and formed aluminum gutter chair or gutter/splice plate or compression pad/gutter; with prefabricated inside and outside corners, miters welded before finishing; without exposed fasteners.
1. Products: Subject to compliance with requirements, provide one of the following:
- Type AP Standard Coping; Architectural Products Co.
 - Permasnap Coping; W.P. Hickman Co.
 - Pac-Loc Coping; Petersen Aluminum Corp.
- C. Lead Pipe Flashing at vent stacks: Install new 16 oz lead sized for penetration at all vent stacks.
- D. Roof Edge Accessories: perimeter edge metal, coping, gravel stops, reglets and trim. Manufacturer's system consisting of kynar prefinished sheet aluminum to profile and of thickness indicated, (minimum .040, unless otherwise noted).
- E. Continuous Soffit Vent. Strip type intake vent for ventilation. Must be equal to Air Vent Inc. Continuous Soffit Vent, aluminum. Product must be for new/retrofit as necessary for specific project. Color as chosen by owner.
- F. Roof Drain components: Where roof drain components require replacement, the new components are to match Jay R Smith series 1300 roof drain components. Flashing clamps (rings) are to be cast iron material that holds the roof membrane without puncturing. Flashing clamp is to also serve as a gravel stop. Dome is to be cast iron, low profile that protects the sump and intercepts debris. All replacement components must be compatible to the existing drain bowl (when it is not being replaced). Otherwise, other cast iron options will be considered.
- G. Retro Fit Roof Drains (when specifically allowed): If allowed, these drains must be matched to the existing drain line to maximize the ability of the new roof drain to properly drain the roof. The retro fit drains must be the "vortex breaker type", equal to OMG Hercules®-Plus. Must be one piece aluminum/stainless steel construction. Must have an integral seal that provides a watertight connection to the existing PVC or cast iron pipes to prevent water from "backing up". Drain stem length must accommodate all existing conditions. Contractor is responsible for all work necessary to the existing conditions to allow the new drain to be properly installed.
- H. Some cases may also be require a fire rated gypsum board or a DensDeck board or roofing attachment or sheathing on vertical surfaces for the proper attachment of the specified roofing/flashings. In these cases a mechanical attachment may be required (depending on the material to which the board is to be attached). All attachment is to be as recommended by NRCA and the manufacturer for the given condition and must comply with the required uplift requirements. These materials are to be protected from the weather until they are covered with roofing material. Any damaged boards must be removed and replaced. See the details and drawing notes for additional information.
- ½" Dens Deck Prime or equal to be used for the attachment of roofing.
- ½ " Type X gypsum board to be used as a fire barrier as indicated.
- I. Assemblies shown and/or described on the drawings. See drawings, details and notes for specific item such as ladders, hatches, roof drains, roof drain accessories, downspout nozzles, downspout boots, pipe supports, etc.

2.04 FABRICATION

ROOF SPECIALTIES AND ACCESSORIES

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- A. Provide items designed and fabricated to fit applications indicated on drawings and to perform optimally with respect to weather resistance, water tightness, durability, strength, and uniform appearance.
- B. Expansion Provisions: Fabricate running lengths to allow controlled expansion not only for movement of metal components in relationship to one another but also to adjoining dissimilar materials, including flashing and roofing membrane materials, in a manner sufficient to prevent water leakage, deformation or damage.

2.05 ALUMINUM FINISHES

- A. Comply with ASP 501 "Finishes for Aluminum" and AMP 505 "Applied Coatings" for finish designations and application recommendations, except as otherwise indicated. For components which are assembled or welded in factory, apply finish after fabrication is completed.
- B. Color of aluminum finish to match approved color sample. Color to be determined by Architect.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with manufacturer's written installation instructions and recommendations. Coordinate with installation of roof deck and other substrates to receive work of this Section, with vapor retarders, roof insulation, roofing membrane, flashing, and wall construction; as required to ensure that each element of the work performs properly, and that combined elements are waterproof and weathertight. Saw cut masonry for installation of wall flashing and install flashing in step configuration. Anchor products included in the Section securely to structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.
- B. Isolation: Where metal surfaces of units are installed in contact with dissimilar metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation as recommended by aluminum producer.

3.02 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces in accordance with manufacturer's instructions. Touch-up damaged metal coatings.
- B. Protection: Provide protective measures as required to ensure that work of this Section will be without damage or deterioration at time of substantial completion.

END OF SECTION 07700

SECTION 07722

ROOF HATCH

I. PART ONE - GENERAL

1.01 SUMMARY

- A. Work included: Furnishing and installing factory fabricated roof hatches
- B. Related Work: **Roofing, Re-roof Preparation, Wood Blocking and Curbing**

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM), 100 Bar Harbor Drive, West Conshocken, PA 19428-2959; (610) 832-9585, fax (610) 832-9555
 - 1. ASTM A 36-93a: Standard Specification for Structural Steel

1.03 SUBMITTALS

- A. Product Data: Provide manufacturer's product data for all materials in this specification.
- B. Shop Drawings: Show profiles, accessories, location, and dimensions.
- C. Samples: Manufacturer to provide upon request; sized to represent material adequately.
- D. Contract Closeout: Roof hatch manufacturer shall provide the manufacturer's Warranty prior to the contract closeout.

1.04 PRODUCT HANDLING

- A. All materials shall be delivered in manufacturer's original packaging.
- B. Store materials in a dry, protected, well-vented area. The contractor shall thoroughly inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.
- C. Remove protective wrapping immediately after installation.

1.05 SUBSTITUTIONS

- A. Contractor guarantees that proposed substitution shall meet the performance and quality standards of this specification.

1.06 JOB CONDITIONS

- A. Verify that other trades with related work are complete before installing roof hatch(s).
- B. Mounting surfaces shall be straight and secure; substrates shall be of proper width.
- C. Refer to the construction documents, shop drawings, and manufacturer's installation instructions.
- D. Coordinate installation with roof membrane, blocking, curbs and roof insulation manufacturer's instructions before starting.
- E. Observe all appropriate OSHA safety guidelines for this work.

1.07 WARRANTY/GUARANTEE

- A. Manufacturer's warranty: Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge. All components shall be warranted as a unit.

II. PART TWO - PRODUCTS

2.01 MANUFACTURER

- A. **The BILCO Company, New Haven, CT**

B. APPROVED EQUAL

2.02 ROOF HATCH

- A. **Furnish and install where indicated on plans metal roof hatch(s) Type S as required by size; FOR THE SIZE : See drawings and notes (contractor to field verify). The roof hatch shall be single leaf. The roof hatch shall be pre-assembled from the manufacturer. See drawings/details.**

- B. Performance characteristics:
1. Cover shall be reinforced to support a minimum live load of 40 psf (195kg/m²) with a maximum deflection of 1/150th of the span or 20 psf wind uplift.
 2. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
 3. Operation of the cover shall not be affected by temperature.
 4. Entire hatch shall be weathertight with fully welded corner joints on cover and curb.
- C. Cover: Shall be 14 gauge paint bond, with field applied finish painting with a 3" (76mm) beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.
- D. Cover insulation: Shall be fiberglass of 1" (25.4mm) thickness, fully covered and protected by a metal liner 22 gauge paint bond, with field applied finish paint
- E. Curb: Shall be 12" (305mm) in height and of 14 gauge paint bond, with field applied finish painting The curb shall be formed with a 3-1/2" (89mm) flange with 7/16" (11.1mm) holes provided for securing to the roof deck. The curb shall be equipped with an integral metal capflashing of the same gauge and material as the curb, fully welded at the corners, that features the manufacturers flashing system, including stamped tabs, 6" (153mm) on center, to be bent inward to hold roofing membrane securely in place.
- F. Curb insulation: Shall be rigid, high-density fiberboard of 1" (25.4mm) thickness on outside of curb.
- G. Lifting mechanisms: Manufacturer shall provide compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe
- H. Hardware
1. Heavy pintle hinges shall be provided
 2. Cover shall be equipped with a spring latch with interior and exterior turn handles
 3. Roof hatch shall be equipped with interior and exterior padlock hasps.
 4. The latch strike shall be a stamped component bolted to the curb assembly.
 5. Cover shall automatically lock in the open position with a rigid hold open arm equipped with a 1" (25.4mm) diameter red vinyl grip handle to permit easy release for closing.
 6. Compression spring tubes shall be an anti-corrosive composite material and all other hardware shall be zinc plated and chromate sealed. Springs shall have an electrocoated acrylic finish for corrosion resistance.
 7. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.
 8. Supply and install Bil-Guard ® Hatch Railing System. Verify the handing of the gate for the safest operation . Also, verify that the gate will not be obstructed by adjacent construction (such as parapet walls.
- I. Finishes: factory applied paint bond primer, and field applied finish paint.

III. PART THREE - EXECUTION

3.01 INSPECTION

- A. Verify that roof hatch installation will not disrupt other trades. Verify that the substrate is dry, clean, and free of foreign matter. Report and correct defects prior to any installation.

3.02 INSTALLATION

- A. Submit product design drawings for review and approval to the architect or specifier before fabrication.
- B. The installer shall check as-built conditions and verify the manufacturer's roof hatch details for accuracy to fit the application prior to fabrication. The installer shall comply with the roof hatch Manufacturer's installation instructions.
- C. The installer shall furnish mechanical fasteners consistent with the roof requirements.

END OF SECTION 07722

SECTION 07900
JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preparing sealant substrate surfaces.
- B. Sealant and joint backing.

1.02 SYSTEM DESCRIPTION

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

1.03 SUBMITTALS

- A. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations and colors available and compatibility with system to be sealed (window, metal, door, etc.). Provide manufacturer's descriptive data to include storage requirements, shelf life, curing time, instructions for mixing and application, and primer data (if required). Provide a copy of the Material Safety Data Sheet for each solvent, primer or sealant material.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with SWRI (Sealant, Waterproofing and Restoration Institute) requirements for materials and installation.

1.05 ENVIRONMENTAL REQUIREMENTS

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

PART 2 PRODUCTS

2.01 SEALANTS

- A. Butyl Sealant (Type A): ASTM C920, single component, solvent release, non-skinning, non-sagging, color as selected.
 - 1. Elongation Capability- 7 to 10 percent.
 - 2. Service Temperature Range- 13 to 180 degrees F.
 - 3. Shore A Hardness Range- 10 to 30.
- B. Polyurethane Sealant (Type B and Type B-P): ASTM C920, single component, chemical curing, non-staining, non-bleeding, non-sagging, (pourable or self-leveling; Type B-P only); color as selected.
 - 1. Elongation Capability- 25 percent.
 - 2. Service Temperature Range- 40 to 180 degrees F.
 - 3. Shore A Hardness Range- 20 to 35.

- C. Silicone Sealant (Type C): ASTM C920, single component, solvent curing, non-sagging, non-staining, non-bleeding; color as selected.
- | | | |
|----|----------------------------|----------------------|
| 1. | Elongation Capability- | 25 percent. |
| 2. | Service Temperature Range- | 65 to 180 degrees F. |
| 3. | Shore A Hardness Range | 15 to 35. |
- D. Siliconized Acrylic Sealant (Type D): ASTM C834, single component, solvent curing, non-sagging, non-staining, non-bleeding; color as selected
- | | | |
|----|-------------------------------|---------------------|
| 1. | Elongation Capability (min.)- | 25 percent |
| 2. | Service Temperature Range- | 0 to 180 degrees F. |
| 3. | Shore A Hardness Range- | 10 to 30. |
- E. Pourable, Elastomeric Concrete Expansion Joint Sealer: Resilient, grey in color (for sidewalks and other finished concrete) or to match surrounding color (adjacent to precast or rubbed concrete of a particular color), crack and shrink resistant, water proof and UV resistant. Shall be a product specifically formulated for the particular application. Typically used in exterior applications in concrete stair, ramp, sidewalk and similar construction. All products subject to Architect's approval.

Note: Do not use silicon sealants in any roofing situations. All caulking and joint sealants shall be in strict accordance with roof manufacturer's specifications and approved by roof manufacturer.

2.02 ACCESSORIES

- A. Primer: Provide a nonstaining, quick-drying type and consistency recommended by the sealant manufacturer for the particular application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Provide glass fiber roping or neoprene, butyl, polyurethane, or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer. Provide 25 to 33 percent oversized backing for closed cell and 40 to 50 percent oversized backing for open cell material, unless otherwise indicated. Make backstop material compatible with sealant. Do not use oakum or other types of absorptive materials as backstops.
- D. Bond Breaker: Provide pressure sensitive tape if approved by sealant manufacturer to suit application. Otherwise, provide the type and consistency recommended by the sealant manufacturer to prevent adhesion of the sealant to backing or to bottom of the joint.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Remove loose materials and foreign matter which might impair adhesion of sealant.
- C. Verify that joint backing and release tapes are compatible with sealant.

3.02 INSTALLATION

- A. Clean joints in accordance with manufacturer's instructions.
- B. Install sealant in accordance with manufacturer's instructions.
- C. Measure joint dimensions and size materials to achieve 2:1 width/depth ratios.
- D. Install joint backing to achieve a neck dimension no greater than 1/3 the joint width. Cut-back or trim the joint backing/separator to achieve an adequate depth as necessary for proper installation and as recommended by sealant manufacturer.
- E. Install bond breaker where joint backing is not used.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave, unless otherwise noted or recommended for the particular application.

3.03 SCHEDULES

In general, where sealant is visible and is intended to be painted, color shall be either white or a base color appropriate for the final intended finish coat color. Where sealant is visible and not intended to be painted, color shall be selected by Architect. Where sealant is not visible, color shall be gray.

The following schedule is provided as a general guideline for sealant usage. In no case shall this schedule be interpreted as superceding any manufacturer's recommendation for sealant use with their particular system(s) or product. Follow all sealant recommendations for the product or item being installed. Always use sealants that are compatible with the item or system for which the sealant is being used. If, for instance, a storefront or window manufacturer recommends a specific sealant, contractor shall supply and use such sealant, and in the manner recommended, in order not to void manufacturer's warranty. Any specialty sealants must be used that are recommended by the manufacturer of any item specified or otherwise approved for use in this project.

INTERIOR SEALANTS - Provide sealant type(s) at locations indicated:

- | | |
|--|---------------|
| a. Small voids between walls or partitions and adjacent lockers, casework, shelving, door frames, built-in or surface-mounted equipment and fixtures, and similar items. | <u>Type D</u> |
| b. Perimeter of frames at doors, windows, and access panels which adjoin exposed interior concrete and masonry surfaces. | <u>Type D</u> |
| c. Joints of interior masonry walls and partitions which adjoin columns, pilasters, concrete walls, and exterior walls unless otherwise detailed. | <u>Type D</u> |
| d. Joints between edge members for acoustical tile and adjoining vertical surfaces. | <u>Type D</u> |

- | | |
|--|---------------|
| e. Interior locations, not otherwise indicated or specified, where small voids exist between materials specified to be painted. | <u>Type D</u> |
| f. Joints between bathtubs and ceramic tile; joints between shower receptors and ceramic tile; joints formed where nonplanar tile surfaces meet. | <u>Type C</u> |
| g. Joints formed between tile floors and tile base cove; joints between tile and dissimilar materials; joints occurring where substrates change. | <u>Type C</u> |
| h. Behind escutcheon plates at valve pipe penetrations and showerheads in showers. | <u>Type C</u> |

EXTERIOR SEALANTS - Provide sealant type(s) at locations indicated:

- | | |
|---|--------------------|
| a. Joints and recesses formed where frames and vents adjoin masonry, concrete, or metal frames. Use sealant at both exterior and interior surfaces of exterior wall penetrations. | <u>Type A</u> |
| b. Joints between new and existing exterior masonry walls. | <u>Type B</u> |
| c. Masonry joints where shelf angles occur. | <u>Type A</u> |
| d. Joints in wash surfaces of stonework. | <u>Type B</u> |
| e. Expansion and control joints. | <u>Type B</u> |
| f. Interior face of expansion joints in exterior concrete or masonry walls where metal expansion joint covers are not required. | <u>Type D</u> |
| g. Voids where items pass through exterior walls. | <u>Type A or B</u> |
| h. Metal reglets, where flashing is inserted into masonry joints, and where flashing is penetrated by coping dowels. | <u>Type B</u> |
| i. Metal-to-metal joints where sealant is indicated or specified. | <u>Type A</u> |
| j. Joints between ends of gravel stops, fascias, copings, and adjacent walls. | <u>Type A or B</u> |
| k. Seats of metal thresholds for exterior doors. | <u>Type B-P</u> |
| l. Sidewalk expansion joints | <u>Type E</u> |

END OF SECTION 07900

SECTION 09900

PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation and field application (non-factory applied) of paints and coatings.

1.02 SYSTEM DESCRIPTION

- A. Finish Materials: Conform to applicable code for flame/smoke rating requirements.

1.03 ENVIRONMENTAL REQUIREMENTS

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

PART 2 PRODUCTS

2.01 MATERIALS

- A. Manufacturers:
 - 1. ***Sherwin Williams – Promar 200, unless a specific product is recommended by the manufacturer of a particular product or stated otherwise in the schedule at the end of this section.***
 - 2. or Approved Equal
- B. Coatings: Ready mixed except field catalyzed coatings of good flow and brushing properties, capable of drying or curing free of streaks or sags formulated specifically for the required application.
- C. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials required and/or recommended by manufacturer to achieve the finishes specified.
- D. Products: Some surfaces and materials may require a specialty (or a different line of paint). This depends on the material being coated and the variation in the line of paint products of the approved manufacturer.

2.02 FINISHES

- A. Refer to schedule at end of section for surface finish schedule. Follow any additional recommendations for all products/materials being painted.
- B. See drawings and finish schedule for finishes required for specific assemblies, surfaces and areas.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

- A. Verify that substrate conditions are ready to receive work.

- B. Measure moisture content of porous surfaces using an electronic moisture meter. Do not apply finishes unless moisture content is less than 12 percent minimum; or, lower if recommended for a particular substrate or paint product being used.
- C. Correct minor defects and clean surfaces which affect work of this Section.
- D. Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing. Clean and remove any paint that is on these items before re-installing.
- E. Gypsum Board Surfaces: Fill minor defects with latex compounds as recommended by the paint manufacturer for the particular application . Spot prime defects after repair.
- F. Interior Concrete Floor Surfaces Scheduled to Receive Paint Finish: Remove foreign matter. Remove oil, grease, dirt, dust, soap, wax , etc. with a solution of tri-sodium phosphate or as recommended by concrete floor paint manufacturer. Rinse well and allow to dry.
- G. Uncoated Ferrous Surfaces: Remove scale by wire brushing, sandblasting, clean by washing with solvent. Apply treatment of phosphoric acid solution. Apply primer after repairs before finish coat(s).
- H. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust, hand clean, clean surfaces with solvent. Apply primer to bare or damaged steel surfaces.
- I. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, sappy sections , etc. with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.
- J. Exterior Wood Items Scheduled to Receive Paint (including dormer siding, roof soffits, windows and trim, doors and trim, louvers, and standing and running trim, etc.): Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections, etc. with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Otherwise, prepare as recommended by primer manufacturer.
- K. Portland Cement Plaster (Stucco): Allow freshly applied stucco to cure for the number of days recommended by stucco paint (coating) manufacturer. Clean existing stucco surfaces thoroughly, removing all dust, dirt and loose mortar with wire brush. Treat any mildew or efflorescence per paint manufacturer's instructions. All surfaces must be free of oil and grease.
- L. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove foreign matter and debris. Remove all oil, grease, wax, etc. with a solution of tri-sodium phosphate , or a preparation product recommended by primer/paint manufacturer, rinse well and allow to dry.
- M. For all materials, surfaces objects: follow the manufacturer's recommendations for surface preparation for the material being painted taking into consideration the given (existing) conditions. Follow all preparation steps; verify that all conditions are as required. Make all necessary corrections as recommended, and use all recommended accessory materials in order to properly prepare the surfaces.

3.02 APPLICATION

- A. Apply products in accordance with manufacturer's instructions on surfaces prepared per manufacturer's instructions. Follow all manufacturers' environmental recommendations (temperature, humidity, etc.) Protect equipment, fixtures, machinery, adjacent finishes, etc. from overspray, splatter, and fall out. Clean all affected work as requested.
- B. Sand transparent finishes lightly between coats to achieve required finish.
- C. Where clear finishes are required, tint fillers to match wood.
- D. Where painted finishes are required on interior millwork, wainscot, moulding assemblies, and other interior wood details; all coats of primer and paint on these surfaces will be spray applied.
- E. When "dry fall" paints are approved to be used (typically to paint exposed structure and/or other areas to be masked or "blacked out") as with all coatings, the manufacturers recommendations are to be followed for preparation. Note that "dry fall" paint is particularly affected by temperature and humidity and the manufacturer's guidelines should be followed closely. It is the Contractor's responsibility to protect all finishes, fixtures, and equipment from the fall out from this paint. Clean up all dry fall as recommended so that it does not accumulate and affect any other materials or surfaces.

3.03 CLEANING

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

3.04 SCHEDULE - EXTERIOR SURFACES

- A. Steel - Shop Primed:
 - 1. Touch-up with alkyd primer.
 - 2. Two coats of alkyd enamel, semi-gloss.
- B. Steel - Unprimed:
 - 1. One coat alkyd primer.
 - 2. Two coats alkyd enamel, semi-gloss.
- C. Wood:
 - 1. Seal any knots or traces of sap.
 - 2. Prime with one coat of approved oil-based (alkyd) primer.
 - 3. Finish with two coats of semi-gloss, exterior acrylic enamel.
- D. Concrete and Unit Masonry: See drawings for additional information.
 - 1. First coat: "Loxon XP" waterproofing System, A24 Series
 - 2. Second coat: "Loxon XP" waterproofing System, A24 Series, brush- or roller-applied.
 - 1. First coat: ConFlex XL, Texture Elastomeric High Build Coating
 - 2. Second coat: ConFlex XL, Texture Elastomeric High Build Coating
- E. Portland Cement Plaster (Stucco)
 - 1. Two coats UGL "Drylok" stucco paint.

- F. See finish schedule, other specification sections and drawings for additional information and specific information regarding products used at specific locations

3.05 SCHEDULE - INTERIOR SURFACES

A. Wood – Opaque (paint) finish:

1. Filler coat after any required patching (open grained wood only).
2. One coat latex primer.
3. One coat latex.

B. Wood - Transparent:

1. Filler coat (for open grained wood only).
2. Two coats of stain.
3. One coat of sealer.
4. Two coats of varnish, satin.

C. Steel - Unprimed:

1. One coat alkyd primer.
2. Two coats alkyd enamel, semi-gloss.

D. Steel - Primed:

1. Touch-up with original primer.
2. Two coats alkyd enamel, semi-gloss.

E. Portland Cement Plaster (Stucco)

1. Two coats UGL "Drylok" stucco paint.

F. Concrete Floors:

1. First coat: "Drylok" concrete floor paint, brush-applied; semi-gloss.
2. Second coat: "Drylok" concrete floor paint, brush- or roller-applied; semi-gloss.

G. Gypsum Board:

1. 1 coat of latex primer.
2. 2 coats of interior latex,
(eggshell for typical application, semi-gloss for restrooms, janitor, wet areas, etc.)

H. Concrete Masonry Units:

1. 1 coat of interior masonry primer
2. 2 coats of interior latex, typically semi gloss

- I. See finish schedule, other specification sections and drawings for additional information and specific instructions.

END OF SECTION 09900