

Project Manual

A Re-Roof Project For:

Raymond Bowers Elementary School

Harriman, Tennessee

And

A Re-Roof Project For:

Kingston Elementary School

Kingston, TN

Project Number

LGA 17018

Date of Issuance

03/31/2017

Owner Name and Address

Roane County Schools

105 Bluff Road

Kingston, Tennessee 37763

Architect

Lewis Group Architects, Inc. P.C.

6512 Deane Hill Drive, Knoxville, TN 37919 V (865) 584-5000 F (865) 588-1272

www.lewisgroup.net

63 North Ocoee Street, Cleveland, TN 37311 V (423) 476-0012 F (423) 476-0012

SEALS PAGE



Architecture

END OF DOCUMENT 00 01 07

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Not Used

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Not Used

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Not Used

END OF SECTION 00 01 10

SECTION 00 01 15 - LIST OF CONTRACT DRAWINGS

The following drawings comprise the list of Contract Drawings:

ARCHITECTURAL

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- A5.1 RAYMOND BOWERS ELEMENTARY SCHOOL ROOF PLAN
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END OF SECTION 00 01 15

SECTION 00 11 15
ADVERTISEMENT FOR BIDS

Bids are invited for General Contract for the work of the following project.

A Re-Roof Project for
Raymond Bowers Elementary School
Harriman, Tennessee
And
A Re-Roof Project for
Kingston Elementary School
Kingston, Tennessee

Bonafide Prime Bidders obtaining Bidding Documents by paying a Plan Deposit with certified check or cashier's check, become Bidders of Record and automatically receive subsequent addenda. Prime Bidders will also receive Bid Packs including the Bid Envelope and other forms required for bidding.

Prime Bidders are required to obtain Bid Documents at the office of the Designer by paying a refundable Plan Deposit in the amount of \$50.00 in the form of a certified check or cashier's check, made payable to Roane County Schools.

Roane County Schools
105 Bluff Road
Kingston, TN 37763
865-376-5592

Bidders of Record and major subcontractors may obtain additional copies of Bidding Documents at cost from Designer or Plan Rooms, but costs will not be refundable.

Examine documents at Designer's office or Plan Rooms listed below.

Roane County Schools Business Office, Kingston, TN 865-376-5592
Knoxville Builders Exchange Knoxville, TN 865-525-0443
F.W. Dodge McGraw-Hill Plan Room, Knoxville, TN 877-784-9556
Associated General Contractors, Knoxville, TN 865-525-2166
Black Contractors Association, Knoxville, TN 865-637-8246

A Mandatory Pre-Bid Conference will be held at 2:00 pm, local time, on Tuesday, April 25, 2017, at the Kingston Elementary School, 2000 Kingston Hwy, Kingston, TN 37763. Bidders must be present at the mandatory Pre-Bid Conference for their bids to be considered.

Bidders bidding \$25,000.00 or more must be licensed per state law. Five percent (5%) Bid Security is required. Non-Discrimination policy applies.

Include with each bid, Bid Security in the amount equal to five percent of the total of the Bid, plus all Alternates, payable to the Roane County Purchasing Office in the form of (1) a certified check or cashiers check or (2) a satisfactory Bid Bond executed by a corporate surety licensed under the laws of the State of Tennessee to execute such Bonds.

Bids will be received

Until: 2:00 pm, local time
On: Thursday, May 4, 2017

At: Sealed bids should be mailed to the attention of, Finance Director, Roane County Purchasing Office, 200 E Race St #3, Kingston, TN 37763. Bids will be accepted until 3:00 PM at which time bids will be opened in the Purchasing Office.

Each Bidder must be appropriately licensed as a Contractor in the State of Tennessee as provided in T.C.A. 62-6-101. Complete all blanks on the bid envelope, otherwise, the Bid will not be opened.

The Owner reserves the right to reject any or all Bid proposals and to waive all informalities. A conditional or qualified BID will not be accepted. Award will be made to the lowest responsible, responsive BIDDER.

END OF SECTION 00 11 15

**ROANE COUNTY PURCHASING DEPARTMENT
ADVERTISEMENT FOR BID**

Roane County is inviting sealed bids for the service(s) listed below, subject to the terms and conditions of the Invitation to Bid, the accompanying specifications, and the Roane County Purchasing Manual.

At the appointed time bids will be publicly opened in the office of the Roane County Purchasing Agent at the above address. Bids arriving in the Purchasing Department past the appointed date and time will be considered late and will not be opened.

Deliver Bids To:

**ROANE COUNTY PURCHASING DEPARTMENT 200
EAST RACE STREET, SUITE #3
KINGSTON, TENNESSEE 37763**

Bid Number: 2017-07-177

**A RE-ROOF PROJECT FOR RAYMOND BOWERS ELEMENTARY SCHOOL
HARRIMAN, TENNESSEE**

AND

**A RE-ROOF PROJECT FOR KINGSTON ELEMENTARY SCHOOL
KINGSTON, TENNESSEE**

**MANDATORY PRE-BID CONFERENCE, TUESDAY, APRIL 25, 2017 AT 2:00 P.M.
AT KINGSTON ELEMENTARY SCHOOL, KINGSTON, TENNESSEE**

Open Date & Time: May 4, 2017 at 2:00 p.m. (Eastern Time Zone)

Bids will be opened in the Purchasing Office

The Bid Envelope must show the Bid Number, Name & Opening Date.

PURCHASING CONTACT INFORMATION

Lynn Farnham, CPPO, CPPB

Purchasing Agent

Phone: 865-376-4317

Fax: 865-376-4318

Email: lynn.farnham@roanecountytn.gov

GENERAL TERMS & CONDITIONS

Attached are instructions and conditions for submitting a bid for Roane County Government. The objective of this bid is to select suppliers in such a manner as to provide for open and free competition and comparability.

BID PREPARATION & SUBMISSION

1. Bidders are expected to examine specifications, terms and conditions, general or special conditions, schedules and all instructions for the purpose of this bid. Failure to do so will be at the bidder's risk.
2. All bids shall be in accordance with the instructions to bidders and specifications included in this ITB. Specifications are intended to be open and non-restrictive.
3. All pricing submitted in the bid document must be completed in ink or typewritten. The bottom line total must also be printed in ink or typewritten on the proposal form. No erasures shall be permitted. Errors may be crossed out and corrections printed in ink or typewritten and must be initialed in ink by the person signing the bid.
4. All bids must meet or exceed the enclosed specifications.
5. It shall be the sole responsibility of the bidder to make certain that all bids in proper form are submitted to the Purchasing Department as described below.
6. All original forms must be signed by a person with authority to bind the bid. The bid must be sealed in an envelope that is labeled according to the directions stated below.
7. The vendor's name & address, bid/proposal number, and bid/proposal date and time is to be on the outside of the envelope. If bidding over \$25,000 the contractor's licensing information is to be on the outside of the bid envelope in accordance with T.C.A. § 62-6-119.
8. The bid must then be in a sealed envelope/package mailed or delivered to the following address:

Roane County Purchasing Department
200 East Race Street, Suite #3
Kingston, Tennessee 37763

Please note that Roane County does not receive a guaranteed delivery time for express mail and/or packages. Please mail accordingly.

12. Sealed written bids will be received at the time and place specified on the Invitation to Bid. Postmark on the Bid by this date will not suffice. Bid must be received on or before the date and time stated. Faxed bid documents will not be accepted.

LATE RECEIPT OF THE BID

1. The bid and modifications or withdrawals thereof received after the time set for opening will not be considered, unless they are received before the award is made and it is determined by Roane County that failure to arrive on time was due solely to a delay in delivery for which the bidder has no responsibility. Roane County does not receive a guaranteed delivery time for express mail and/or packages. Please mail accordingly.
2. Bids must be in the Purchasing Department prior to 2:00 p.m. on the appointed date. Time will be determined by the clock in the Roane County Purchasing Department and once Purchasing Agent/or their designee determines the time is 2:00 p.m., no other bids will be accepted.

RESTRICTIVE OR AMBIGUOUS SPECIFICATIONS

1. It is the responsibility of the bidder to review the entire Invitation to Bid document and to notify the Purchasing Agent if the Invitation to Bid is formulated in a manner that would unnecessarily restrict competition or if it is ambiguous in what is being requested.
2. Pursuant to TCA §12-4-126, questions regarding the specifications or bid procedures must be received by the Purchasing Agent and/or designer no less than ninety-six (96) hours before the bid opening date. No addenda will be issued within less than forty-eight (48) hours of the bid opening day, excluding weekends and legal holidays designated in §15-1-101 unless the bid opening is extended for a reasonable time as determined by the purchasing agent, which shall not be less than forty-eight (48) hours excluding weekends and legal holidays designated in §15-1-101, to allow for any necessary changes to the Invitation to Bid documents and to allow responders to resubmit their responses accordingly.
3. Any questions concerning this Invitation to Bid are to be faxed to the Purchasing Department. Questions will be answered via addenda. Information obtained from any office other than the Purchasing Office is not to be considered binding.

BID OPENING & AWARD

1. Only the bottom line figure will be read at the bid opening. Bids will also be examined for compliance with specification and conditions outlined in the bid document.
2. Consideration will be given to all bids properly submitted. Bids will receive appropriate confidentiality before awarding. Upon award, bid documents and tabulations will be available for review. Errors discovered after public opening may not be corrected, and the bidder may be bound to honor bid as submitted. After investigation of the nature of the mistake, the Purchasing Agent may allow the bid to be withdrawn.
3. The contract will be awarded in writing to the most responsive bidder whose bid conforms best to the Invitation to Bid will be most advantageous to Roane County. It is the intent of Roane County to involve and utilize the best product/services at the best prices and provide small and minority firms, women's business enterprises and labor surplus area firms with increased opportunity to do business with the county. However, currently there are no set asides for small or minority firms.
4. Roane County reserves the right to accept or reject any or all bids and to waive informalities and minor irregularities in the bids received.
5. Roane County reserves the right to award the bid in its entirety or to divide the award in any way that will be more advantageous to the county.
6. Bid results will be posted on the County's website along with the bid tabulation.

PROTEST PROCEDURE

1. If a prospective vendor does not agree with the bid award, they have the right to protest. Disputes arising from the award of this bid must be submitted in writing to the Roane County Purchasing Department no later than seven (7) days from date of bid award. The steps for dispute resolution may include:
 - A meeting with the Purchasing Agent, the requisitioning department's manager and representatives from the disputing party to discuss and resolve the complaint.
 - Information from the aforementioned meeting will be forwarded to the County Attorney for review.

- A written decision letter stating the reasons for the decision will be prepared by the Purchasing Agent and submitted in writing to the protestor and all parties involved.
- Purchases will not be allowed under this procurement until a final decision is rendered.
- In the event that purchases must be made before a final decision is rendered, the emergency purchase procedures will be used.

APPROPRIATION

1. In the event no funds are appropriated by Roane County for the goods or services in any fiscal year or insufficient funds exist to purchase the goods or services, then the contract shall expire upon the expenditure of previously appropriated funds or the end of the current fiscal year, whichever occurs first, with no further obligations owed to or by either party.

INSURANCE

1. The contractor will maintain, at their expense adequate insurance coverage to protect them from claims arising under the Worker's Compensation Act, from claims for damages resulting from bodily injuries and damage to their property, for Bodily Injury and Property Damage Liability in the amount of no less than \$1,000,000, for Products and Completed Operations Liability of no less than \$1,000,000 and from claims for damage to any Roane County property. Additional insurance requirements may be listed any Special Terms & Conditions or in the Bid Specifications. This insurance company shall have a Best's rating of A or better. Any deviations from the above requirements must be disclosed in the bid submission.
2. The successful bidder shall furnish a Certificate of Insurance issued by their insurance company showing that Roane County as an additional insured. Carrier will assume full common liability of all shipments.

COMPLIANCE WITH ALL LAWS

1. Contractor is assumed to be familiar with and agrees to observe and comply with all federal, state, and local laws, statutes, ordinances, and regulations in any manner affecting the provision of goods and/or services, and all instructions and prohibitive orders issued regarding this work and shall obtain all necessary permits.

GOVERNING LAW

1. This contract shall be governed by the laws of the State of Tennessee, and all obligations of the parties are performable in Roane County, Tennessee. The Courts in Roane County shall have exclusive and concurrent jurisdiction of any disputes which arise hereunder.

BUSINESS LICENSES

1. Bidders located in Tennessee are required to have a current business license issued by the State of Tennessee at the time the bids are submitted. Vendors located outside Tennessee are required to obtain a business license issued by the State of Tennessee.
2. A Roane County Business License is required if a contractor is doing more than \$50,000 in business in the county.

3. A Business Tax & License Affidavit is required to be submitted with the bid.

INDEMNIFICATION/HOLD HARMLESS

1. Contractor shall indemnify, defend, save and hold harmless all departments of Roane County Government and/or the Roane County Board of Education, its officers, agents and employees from all suits, claims, actions or damages of any nature brought because of, arising out of, or due to breach of the agreement by Contractor, its subcontractors, supplier, agents or employees or due to any negligent act or occurrence or any omission or commission of the contractor, its subcontractors, suppliers, agents or employees until the contract terminates.

VENDOR PERFORMANCE

1. If the contractor fails in full or part to perform or comply with any provision of this Contract or the terms or conditions of any documents referenced and made a part hereof, Roane County may terminate this contract, in whole or in part, and may consider such failure or noncompliance a Breach of Contract. Contractors with poor performance will be notified at the time of such performance and be given opportunity to correct the problems. Documentation will be kept on file. Any contractor with continued poor performance will be removed from the potential vendor list for one year.
2. Roane County expressly retains all its rights and remedies provided by law in case of such breach, and no action by Roane County shall constitute a waiver of any such rights or remedies. In the event of termination for default, Roane County reserves the right to purchase its requirements elsewhere, with or without competitive bid.
3. Failure to deliver within the time specified or within a reasonable amount of time, or failure to make replacements of a rejected item immediately will constitute authority to purchase on the open market so as to replace the item(s) rejected and/or not received. On all such purchases, the Vendor agrees to promptly reimburse the county for excess costs incurred by such a purchase.

BREACH OF CONTRACT

1. A party shall be deemed to have breached the contract if any of the following occurs:
 - Failure to provide the services that conform to contract requirements.
 - Failure to maintain/submit any report required hereunder.
 - Failure to perform in full or in part any of the other conditions of the contract.

CONTRACT TERMINATION FOR CAUSE

1. If the contractor fails to properly perform its obligations under this contract in a timely or proper manner, or if the contractor violates any terms of this contract, the county shall have the right to terminate the contract and withhold payments in excess of fair compensation for completed services.
2. In the event the contract is terminated for due cause by the county, the county shall have the option of awarding the contract to the next lowest bidder or bidding again.

CONTRACT TERMINATION FOR CONVENIENCE

1. The county may, by written notice to the contractor, terminate this contract without cause for any reason. Said termination shall not be deemed a Breach of Contract by the county. The county must give notice of termination to the vendor at least thirty (30) days prior to the effective date of termination. The contractor

shall be entitled to receive compensation for satisfactory, authorized service completed as of the termination date, but in no event shall the county be liable to the contractor for compensation for any service which has not been rendered. Upon such termination, the vendor shall have no right to any actual general, special, incidental, consequential, or any other damages whatsoever of any description or amount.

BOOKS AND RECORDS

1. The contractor shall maintain all books, documents, accounting records and other evidence pertaining to the goods and services provided under this contract and make such materials available at its offices at all reasonable times during the contract period and for three (3) years from the date of the final payment under this agreement for inspection by county or by any other governmental entity or agency participating in the funding of this agreement, or any authorized agents thereof; copies of said records to be furnished if requested.

INVOICES AND PAYMENTS

1. Payment will be made within 30 days after receipt of invoice and/or delivery of items included in this Invitation to Bid, whichever is later.
2. Roane County Government is not subject to taxation. A tax exemption certificate will be provided upon request.

NONDISCRIMINATION AND NON-CONFLICT STATEMENT

1. Contractor agrees that no person on the grounds of handicap, age, race, color, religion, sex or national origin, shall be excluded from participation in, or be denied benefits of, or be otherwise subjected to discrimination in the performance of this agreement, or in the employment practices of vendor. Contractor shall upon request show proof of such nondiscrimination, and shall post in conspicuous places available to all employees and applicants notices of non-discrimination. Contractor covenants that it complies with the Fair Wage and Hour Laws, the National Labor Relations Act, and other federal and state employment laws as applicable. Contractor covenants that it does not engage in any illegal employment practices.
2. Contractor covenants that it has no public or private interest, and shall not acquire directly or indirectly any interest; that would conflict in any manner with the provision of its goods or performance of its services. The contractor warrants that no part of the total contract amount provided herein shall be paid directly or indirectly to any officer or employee of Roane County as wages, compensation, or gifts in exchange for acting as officer, agent, employee, subcontractor or consultant to contractor in connection with any goods provided or work contemplated or performed relative to the agreement.
3. No employee or member of the Roane County's governing bodies shall participate in the selection or award of a contract if a conflict of interest, real or apparent, would be involved.
4. Officers, employees or officials of the Roane County Government shall neither solicit nor accept gratuities, favors or anything of more than nominal monetary value from vendors or parties to subcontracts.

Bid Number: 2017-07-177

A RE-ROOF PROJECT FOR RAYMOND BOWERS ELEMENTARY SCHOOL
HARRIMAN, TENNESSEE
AND
A RE-ROOF PROJECT FOR KINGSTON ELEMENTARY SCHOOL
KINGSTON, TENNESSEE

(Please fill out completely)

By completing and signing this form you certify that you are an authorized representative of the company for which you are submitting a bid/proposal and that you have the authority to legally bind your company. Further, by completing and signing this form you certify that you agree to all the terms and conditions of this bid/proposal.

1. Vendor Name _____

2. Address _____

City _____ State _____ Zip Code _____

3. Contact Person (Please Print) _____

4. Telephone Number _____ Fax Number _____

5. Vendor's e-mail address _____

6. Authorizing Signature _____

7. Title of Person Signing Bid _____

8. If addenda were issued, please acknowledge the receipt of: (please write "yes" if you received one)
Addendum 1 _____ Addendum 2 _____ Addendum 3 _____ Addendum 4 _____

9. If applicable, please indicate below if discounts will be allowed for prompt payment or if there is not discount offered:
_____ % Net 10 Days; _____ % Net 20 Days; _____ % Net 30 Days; _____ No Discount

COOPERATIVE PURCHASING - Vendors are to indicate if it is permissible for other governmental agencies in the State of Tennessee to purchase these items or services at the same price. Freight charges may be adjusted to reflect differences in delivery costs to other locations. Please indicate the approval of Cooperative Purchasing.

_____ Yes No

SCHOOL CONTRACTS ONLY

CRIMINAL HISTORY RECORDS CHECK – Do you agree to comply with Public Chapter 587 of 2007 which requires all contractors to facilitate a criminal history check, including fingerprinting, conducted by the Tennessee Bureau of Investigation and the Federal Bureau of Investigation for each employee or subcontractor personnel before permitting the employee or subcontractor personnel to have contact with students or enter schoolgrounds?

_____ Yes _____ No

Bid Number: 2017-07-177

A RE-ROOF PROJECT FOR RAYMOND BOWERS ELEMENTARY SCHOOL
HARRIMAN, TENNESSEE
AND
A RE-ROOF PROJECT FOR KINGSTON ELEMENTARY SCHOOL
KINGSTON, TENNESSEE

**NON –COLLUSION, INDEPENDENT PRICE DETERMINATION,
NON-DISCRIMINATION, NON-DEBARMENT & LOBBYING AFFIDAVIT**

I do hereby certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a bid for the same materials, supplies, or equipment, and is in all respects fair and without collusion or fraud.

I understand that collusive pricing is a violation of State and Federal law and can result in fines, prison sentences, and civil damage awards and that no collusion with another firm was used in preparation of this bid.

I also certify that this firm does not discriminate against any employee or applicant for employment on the grounds of race, color, national origin or sex; and does not and will not maintain or provide for his employees any segregated facilities at any of its establishments, and further, that the firm does not and will not permit their employees to perform their services at any location under this contract where segregated facilities are maintained.

By submission of this bid, the bidder certifies that neither it or its principals is presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any Federal or State department or agency.

I further certify that during the Invitation to Bid solicitation and/or during the performance of this contract that neither it nor its principals will participate in lobbying activities in conjunction with this project.

I agree to abide by all terms and conditions of this Invitation to Bid and certify that I am authorized to sign this affidavit for the vendor.

Please indicate which of the following apply to your company. This information is requested for information purposes only. Roane County currently has no policy that allows for set asides or preferences for woman owned or minority owned businesses.

_____ African American Owned
_____ Caucasian Owned
_____ Native American Owned
_____ Other Owned

_____ Asian Owned
_____ Hispanic Owned
_____ Woman Owned

Signature

Title

Bid Number: 2017-07-177

A RE-ROOF PROJECT FOR RAYMOND BOWERS ELEMENTARY SCHOOL
HARRIMAN, TENNESSEE
AND
A RE-ROOF PROJECT FOR KINGSTON ELEMENTARY SCHOOL
KINGSTON, TENNESSEE

BUSINESS TAX & LICENSE AFFIDAVIT

The undersigned, ("Affiant"), states that he/she has legal authority to swear this on behalf of _____ ("Contractor"); that Contractor is not in any manner in violation of *Tennessee Code Annotated, §5-14-108(l)* which provides that "no purchase shall be made or purchase order or contract of purchase issued for tangible personal property or services by county officials or employees, acting in their official capacity, from any firm or individual whose business tax or license is delinquent".

Affiant affirms and warrants that Contractor's licenses are currently valid and all business taxes have been paid and are current as of the date of this affidavit. Contractor is licensed and pays business taxes in _____ County, Tennessee.

AFFIANT

By: _____

Title: _____

Date: _____

Witness: _____

Date: _____

Bid Envelope

**Roane County Schools
A Re-Roof Project For
Raymond Bowers Elementary School
Harriman, Tennessee
And
A Re-Roof Project For
Kingston Elementary School
Kingston, Tennessee**

Bid Envelope

Bidder Identification

License No. _____ Expiration Date _____

License Classification Applicable to this Project _____

\$ _____
Dollar Limit

Bidder Name

Address

City ST Zip Code

Telephone

Fax

Email

Subcontractors used on this project

If any work, regardless of dollar value, is required for a subcontractor category, list subcontractor that will perform that work. Or, if Bidder will perform that work in a category with Bidder's own forces, fill in Bidder's name as subcontractor.

If the monetary amount of a subcontractor's work is such that no license is required, "N/A" may be written in the license number column, but still write name.

If no work is required in a subcontractor category, write "N/R" (None Required).

Plumbing

Name

License No.

Expiration Date

Classification

Electrical

Name

License No.

Expiration Date

Classification

HVAC

Name

License No.

Expiration Date

Classification

Fire Protection

Name

License No.

Expiration Date

Classification

SECTION 00 31 19 - EXISTING CONDITION INFORMATION

PART 1 - GENERAL

1.1 INSTRUCTIONS TO BIDDERS

- A. The work area will be exterior roofing exterior access for daily construction activities.
- B. The work will consist of tear-off of existing, and installation of new TPO roofing, removal of existing and replacement with new metal coping, including new metal roof edge flashings and fascia, roof curb flashing, pipe penetration flashing, including guttering and downspouts.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 00 31 19

DOCUMENT 00 41 00 - BID FORM

TO: Roane County Schools
105 Bluff Road, Kingston, TN 37763

FROM: _____

FOR: A Re-Roof Project for
Raymond Bowers Elementary School
Harriman, Tennessee
And
A Re-Roof Project for
Kingston Elementary School
Kingston, Tennessee

Pursuant to and in compliance with the Invitation to Bid, the Instructions to Bidders, and other documents relating thereto, the undersigned hereby proposes to furnish all labor and materials and perform all work complete for the construction of two re-roofing projects mentioned above for Roane County Schools, as required by and in strict conformance with the Contract Documents consisting of the Drawings, the Project Manual, and

Addendum No. ___ dated _____ Addendum No. ___ dated _____

Addendum No. ___ dated _____ Addendum No. ___ dated _____

Addendum No. ___ dated _____ Addendum No. ___ dated _____

In submitting this bid the Bidders acknowledge that they have received, read, and understand the bid documents, have visited the site and become familiar with conditions under which work will be performed, have correlated observations with requirements of Bid Documents, and make this bid in accordance therewith.

In submitting the Bid the Bidder agrees to:

1. Honor this bid for 60 days from date of bid opening.
2. Enter into and execute a contract if presented on the basis of this bid and furnish certificate(s) of insurance, bonds and other documents related to the contract as required by the Bidding Documents.
3. Accomplish work in accordance with the Contract Documents.
4. Achieve Substantial Completion of all work within _____ from Notice To Proceed.
5. Achieve Substantial Completion of the Work in accordance with the number of calendar days Contract Time set forth, allotted from and including the date

stipulated in the Notice to Proceed; and, accept the conditions for Liquidated Damages in the amount of \$500 per calendar day.

- 6. Perform additional work by Change Order under the terms of the contract using the actual cost of the work plus ten percent (10%) for overhead and five percent (5%) for profit.
- 7. Have a drug free workplace program as required by the "Drug-Free Workplace Affidavit". Attach a fully executed affidavit with the Bid Form.
- 8. Contractor shall comply with Public Chapter 587 of 2007, as codified in Tennessee Code Annotated Section 49-5-413, which requires all contractors to facilitate a criminal history records check conducted by the Tennessee Bureau of Investigation and the Federal Bureau of Investigation for each employee prior to permitting the employee to have contact with students or enter school grounds when students are present.

BID:

Complete the Work of the Base Bid for this project for the Lump Sum of:

BASE BID:

_____ and _____ /100ths Dollars
(Amount shown in both words and figures)

\$ _____

Alternate No. 1: Add the following amount:

_____ and _____ /100ths Dollars
(Amount shown in both words and figures)

\$ _____

Alternate No. 2: Add the following amount:

_____ and _____ /100ths Dollars
(Amount shown in both words and figures)

\$ _____

UNIT PRICES:

Propose the following unit pricing in addition to the total calculated value above, and agree to their use throughout the duration of construction, if accepted by Owner:

| ITEM DESCRIPTION | UNIT PRICE | UNITS |
|---|------------|---------|
| UP No. 1: 2 X Moisture Resistant Wood Blocking | \$ _____ | Per: LF |
| UP No. 2: Replace unsuitable flat roof insulation | \$ _____ | Per: LF |
| UP No. 3: Replace unsuitable tapered roof insulation | \$ _____ | Per: LF |

NAME OF FIRM _____

SIGNED BY _____ DATE: MM/DD/YYYY _____

NAME: _____ TITLE _____

BIDDER'S ADDRESS _____
STREET

CITY _____ STATE _____ ZIPCODE _____

TELEPHONE _____

CONTRACTOR'S LICENSE NO: _____ Dollar Limit: _____

EXPIRATION DATE: ____/____/____
MM / DD / YYYY

END OF DOCUMENT 00 41 00

SECTION 00 41 13 - DRUG-FREE WORKPLACE AFFIDAVIT

STATE OF _____

COUNTY OF _____

The undersigned, principal officer of _____,
an employer of five (5) or more employees contracting with

_____ to provide construction services, hereby states under
oath as follows:

1. The undersigned is a principal officer of _____
(Hereinafter referred to as the "Company"), and is duly authorized to execute this
Affidavit on behalf of the Company.
2. The Company submits this Affidavit pursuant to T.C.A. § 50-9-113, which requires
each employer with no less than five (5) employees receiving pay to provide
construction services to submit an affidavit stating that such employer has a drug-
free workplace program that complies with Title 50, Chapter 9, of the Tennessee
Code Annotated.
3. The Company is in compliance with T.C.A. § 50-9-113.

Further affidavit saith not.

Principal Officer

STATE OF _____

COUNTY OF _____

Before me personally appeared _____,
with whom I am personally acquainted (or proved to me on the basis of satisfactory
evidence), and who acknowledged that such person executed the foregoing affidavit for
the purposes therein contained.

Witness my hand and seal at office this _____ day of _____, 20____.

Notary Public

My commission expires: _____

END OF SECTION 00 41 13

SECTION 00 72 00 - GENERAL CONDITIONS

PART 1 - GENERAL

1.1 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

- A. The Conditions of the Contract shall be the General Conditions of the Contract for Construction, AIA Document A201, 2007 Edition (not bound herewith).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 00 72 00

SECTION 00 73 00 - SUPPLEMENTARY CONDITIONS

The following supplements modify, change, delete from or add to the General Conditions of the Contract for Construction (AIA Document A201, 20007 Edition), hereinafter referred to as the General Conditions. Where any part of the General Conditions is modified or voided by these amendments the unaltered provisions of that part shall remain in effect.

ARTICLE 1 - GENERAL PROVISIONS**1.1.4 THE PROJECT**

A. Add Sub-paragraphs 1.1.4,a and 1.1.4,b as follows:

1.1.4,a The Contractor and its subcontractors and vendors have examined carefully the various conditions and limitations under which the work is to be performed including, but not limited to (1) the location, conditions, character and arrangement of the site, its environs, and contiguous properties thereto; (2) availability and competence of labor required to properly complete the work; (3) weather conditions, climatic range and precipitation generally prevailing in the region and immediate vicinity of the site; (4) availability and cost of materials, tools, equipment and resources necessary to properly complete the work; and (5) other similar matters.

1.1.4,b Neither Owner nor Architect assumes any responsibility or liability for the above listed matters or other similar issues related thereto, nor any responsibility or liability for safety of the site, work, workplace, property, or persons, these being the sole responsibility of the Contractor.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

A. Add Subparagraphs 1.2.4, 1.2.5 and 1.2.6 as follows:

1.2.4 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

1. The Agreement.
2. Addenda, with those of later date having precedence over those of earlier date.
3. The Supplementary Conditions.
4. The General Conditions of the Contract for Construction.
5. Drawings and Specifications.

1.2.5 If there is any conflict or discrepancy within or between any of the Contract Documents involving the quality or quantity or work required, it is the intention of the Contract that the work of highest quality or greatest quantity shown or specified shall be furnished, unless such conflict or discrepancy shall have been brought to the Architect's attention and clarified by Addendum prior to the opening of bids.

1.2.6 Whether or not the word "ALL" is used in the specifications, coverage is intended to be complete, except where partial coverage is specifically and

expressly noted. In all cases where an item is referred to in the singular number, it is intended that the reference shall apply to as many such items as are required to complete the work. Words such as "Install", "Provide", "Furnish", and "Supply" shall be construed as meaning complete furnishing, installing and constructing unless modified by additional information.

ARTICLE 2 - OWNER

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

A. Delete Subparagraph 2.2.5 and substitute the following:

2.2.5 The General Contractor will be furnished with one set of unbound bond reproducible Contract Documents, Drawings and Specifications, required for construction of the Work. All Drawings and Specifications shall be subject to the provisions of Paragraph 1.6 "Ownership and Use of Architect's Drawings, Specifications and other Instruments of Service."

A. Add new paragraph 2.5 and subparagraph 2.5.1 as follows:

2.5 OWNER RESPONSIBILITY

2.5.1 The Owner shall have no responsibility for, nor control of supervision, schedules, means, methods, techniques, sequences, procedures, or coordination of any portion of the work under this contract.

ARTICLE 3 - CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENT FIELD CONDITIONS BY CONTRACTOR

A. Add new subparagraph 3.2.1.1 as follows:

3.2.1.1 Should discrepancies or conflicts in the requirements of the Drawings and Specifications be discovered after the work has started, the Contractor shall report such discrepancies or conflicts to the Architect immediately and no work affected thereby shall be started, or if started, shall be stopped immediately until the Contractor and the Architect agree upon clarification of the discrepancy or conflict.

B. Add new subparagraphs 3.2.2.1 and 3.2.2.2 as follows:

3.2.2.1 Neither Owner nor Architect warrants the accuracy of grades, elevations, dimensions, clearances, or locations indicated on the drawings issued by the Architect, nor for work installed by separate contractors.

3.2.2.2 The Contractor shall verify the accuracy of all such grades, elevations, dimensions, clearances, and locations to its satisfaction. Dimensions of existing or other work at the site shall be verified by the Contractor for connection of work under this contract. Failure of the Contractor to verify

grades, elevations, dimensions, clearances, or locations resulting in errors in the work shall be the sole responsibility of the Contractor and corrected at no additional cost to the Owner.

C. Add new subparagraph 3.2.5 as follows:

3.2.5 No verbal agreement or conversation with any officer, representative, agent, or employee, of the Owner or Architect either before or after the execution of this contract shall affect or modify the terms or obligations herein contained.

3.4 LABOR AND MATERIALS

A. Add the new subparagraph 3.4.4 as follows:

3.4.4 The standards of the work required throughout shall be of such grade as will bring results of the first class only. All material permanently installed in the project shall be new unless otherwise specified or approved by the Architect. New materials shall have been recently manufactured and shall not be obsolete or untested.

3.7 PERMITS, FEES AND NOTICES

A. Add the following new subparagraphs 3.7.6 and 3.7.7:

3.7.6 The Contractor shall pay for all highway fees and for all damages to sidewalks, streets, or other public or private property, or to any public utilities.

3.7.7 The Contractor shall secure all certificates of inspection and of occupancy required by authorities having jurisdiction over the work. These shall be delivered to the Architect upon completion of the work.

ARTICLE 5 - SUBCONTRACTORS

5.3 SUBCONTRACTURAL RELATIONS

A. Add subparagraphs 5.3.1 and 5.3.2 as follows:

5.3.1 The Contractor shall be directly responsible for all of the work included in the Contract, whether performed by his own forces or by his subcontractors. Except in extreme emergencies, all instructions, clarifications and approvals will be given by the Architect to subcontractors only through the Contractor and all shop drawings, samples, and correspondence from the subcontractor shall be submitted to the Architect through the Contractor.

5.3.2 Insofar as it does not affect the quality of workmanship or materials, the Contractor shall settle all questions of responsibility arising among his various subcontractors and shall determine the extent of work and responsibility of each of the subcontractors.

ARTICLE 8 - TIME

8.1 DEFINITIONS

A. Replace subparagraph 8.1.2 with the following:

8.1.2 The date of commencement of the work shall be specified in the written "Notice to Proceed."

8.3 DELAYS AND EXTENSIONS OF TIME

A. Add the following to the end of subparagraph 8.3.2:

. . . Except that neither the Owner nor the Architect shall be obligated or liable to the Contractor for, and the Contractor hereby expressly waives any claims against the Owner and the Architect on account of any damages, costs, or expenses of any nature which the Contractor, its subcontractors, or sub-subcontractors or any other person may incur as a result of any delays, interferences, suspensions, changes in sequence or the like arising from or out of any act or omission of the Owner or the Architect, it being understood and agreed that the Contractor's sole and exclusive remedy in such event shall be an extension of the contract time, but only in accordance with the provisions of the contract documents.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.3 APPLICATIONS FOR PAYMENT

B. Add new subparagraph 9.3.1.3 as follows:

9.3.1.3 Progress payments may be requested monthly and shall be for 95% of the approved amount properly allocable to materials and equipment incorporated in the work and materials covered with applicable insurance and suitably stored in an approved location on the date of the request.

C. Add new subparagraphs 9.3.2.1 and 9.3.2.2 as follows:

9.3.2.1 The Owner and the Architect reserve the right to request additional information including but not limited to, invoices for materials stored. Furnish a separate certificate of insurance covering full value of any material stored off site and subsequent transportation to the job site. Owner shall be named insured on the certificate of insurance.

9.3.2.2 Where circumstances indicate that the Owner's best interest is served by off-site storage, the Contractor shall make written request to the Architect for approval to include such material costs in his next progress payment. The Contractor's request shall meet the following Off-Site Stored Material Requirements:

1. All materials must be stored in a secure bonded warehouse within the State of Tennessee.
2. Provide evidence of insurance on all stored materials.

3. Certification that all stored materials have been inventoried, clearly identified as property of the Owner, and tagged for delivery to the project.
4. Provide a properly executed, recorded Uniform Commercial Code (UCC) financing statement.
5. A letter from the bonding company indicating agreement to the arrangements and that payment to the Contractor shall not relieve either party from their responsibility to complete the project
6. Materials having architectural finishes must be inspected and accepted by the Architect. The Contractor making the request shall pay cost incurred by the Architect to inspect material in off-site storage.
7. Requests for payment of material stored off-site requires 30 days prior approval of the Owner.
8. The requirements indicated above must be met before payment will be approved for materials stored off-site.

E. Add the following new subparagraph 9.3.3:

- 9.3.4 Contractor further warrants that all payments to subcontractors and suppliers due and payable have been or will be paid in strict accordance with all laws and regulations governing such payments. Failure by the Contractor shall result in sufficient funds being withheld from current or future applications. Such failure of contractor when properly substantiated shall be brought to the attention of the Surety.

9.6 PROGRESS PAYMENTS

A. Replace subparagraph 9.6.1 with the following:

- 9.6.1 Unless otherwise provided in the agreement, the Owner will make progress payments to the Contractor on the basis of a duly certified and approved estimate of the work performed submitted to the Owner by the 1st day of each month for the preceding calendar month. In preparing estimates, materials delivered to and properly stored on the site shall be given consideration. Materials stored off-site shall not be paid for by the Owner unless the Contractor furnishes a certificate for that material showing the Owner as the Owner of said material and a Certificate of Insurance in the name of the Owner providing all-risk insurance coverage in an amount which will adequately protect the Owner's interest relative to all materials stored off-site. The Contractor shall remain responsible for the protection of the material, and shall ensure the replacement of any damaged or lost material until project closeout.

9.10 FINAL COMPLETION AND FINAL PAYMENT

A. Revise first sentence of subparagraph 9.10.1, to read:

. . . the Architect and Owner will promptly make such inspection and, when the Architect and Owner finds . . .

- B. In subparagraph 9.10.2, change "and (5)" to read "and (6)", and add a new clause (5) as follows:

. . ., (5) all certificates of occupancy required by the contract documents and authorities having jurisdiction, . . .

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

10.2 SAFETY OF PERSONS AND PROPERTY

- A. Add the following to the end of subparagraph 10.2.3:

. . . The Contractor shall be solely responsible, at its own exposure, for all necessary measures to protect adjacent properties from damage. Adjacent properties that are damaged by acts or omission of the Contractor shall be promptly repaired by the Contractor at its expense and at no additional cost to the Owner.

ARTICLE 11 - INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

- A. Subparagraph 11.1.1, revise first sentence between the words "maintain" and "such insurance" to read as follows:

. . . maintain in a company or companies licensed to do business in the State of Tennessee and to which the Owner has no reasonable objections, such insurance . . .

- B. Add new subparagraphs 11.1.2.1, 11.1.2.2, and 11.1.2.3 as follows:

11.1.2.1 The insurance required by subparagraph 11.1.1 shall be written for not less than the following limits, or greater if required by law.

- a. Workmen's Compensation
 - 1. State: Statutory
 - 2. Employer's Liability: \$500,000 / \$500,000 / \$500,000
- b. Comprehensive General Liability (including Premises-Operations; Independent Contractor's Protective; Products and Completed Operations; Personal Injury and Contractual Liability).
 - 1. Bodily Injury
 - Each Occurrence: \$2,000,000.00
 - Annual Aggregate: \$2,000,000.00
- c. Personal Injury with Employment Exclusion Deleted
 - 1. Annual Aggregate: \$500,000.00
- d. Comprehensive Automobile Liability (including Owned, Hired and Non-Owned)
 - 1. Bodily Injury and Property Damage Combined: \$500,000.00

e. Umbrella Liability: \$1,000,000.00

11.1.2.2 The Contractor shall furnish certificate(s) of the insurance, which shall contain thirty (30) days prior written notice to the Owner of cancellation or of material change in the insurance.

11.1.2.3 All policies insuring the Contractor and subcontractors pursuant to paragraphs 11.1.2, and all subparagraphs, shall be endorsed to include, as additional insured, both the Owner and Architect.

C. Add new sentence after the second sentence in subparagraph 11.1.3 as follows:

. . . Owner. The words "endeavor to" and "but failure to" are to be eliminated from the notice of cancellation provisions on standard accord certificates. If any . . .

D. Add new subparagraph 11.1.3.1 as follows:

11.1.3.1 The Contractor shall furnish one copy of each certificates of insurance herein required for each copy of the agreement which shall specifically set forth evidence of all coverage required by subparagraphs 11.1.1, 11.1.2, and 11.1.3. The form of the certificate shall be AIA Document G705, Certificate of Insurance, or a form equal to it in completeness. The Owner and the Architect shall be named additional insured on all policies except workmen's compensation and automobile liability policies. The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits.

ARTICLE 12 - UNCOVERING AND CORRECTION OF WORK

12.2 CORRECTION OF WORK

A. Add new subparagraph 12.2.5.1 as follows:

12.2.5.1 Guarantee and warranty requirements shall extend to correction, without cost to the Owner, of all work found to be defective or non-conforming to be the contract documents. The Contractor shall bear the cost of correcting all damage resulting from such defects or non-conformance with contract documents exclusive of repairs required as a result of improper maintenance or operation, or of normal wear.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

A. Add the following new paragraph 13.8 and subparagraphs 13.8.1, 13.8.1.1 and 13.8.1.2 as follows:

13.8 EQUAL OPPORTUNITY

13.8.1 The Contractor shall maintain policies of employment as follows:

13.8.1.1 The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of nondiscrimination.

13.8.1.2 The Contractor and the Contractor's Subcontractors shall, in the solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

END OF SECTION 00 73 00

SECTION 01 11 00 - SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Furnish all labor, materials and equipment, and perform all work to construct A Re-Roof Project for Raymond Bowers Elementary School, Harriman, Tennessee, and A Re-Roof Project for Kingston elementary School, Kingston, Tennessee, as specified herein and shown on the accompanying drawings.
- B. Verbal Summary: Without force and effect on requirements of the contract documents the description of the work of the Contract can be summarized as follows:
 - 1. Generally the work consists of:
 - a. Work will include tear-off and installation of new adhered cover board over existing substrate, new roof insulation, and TPO roofing.
 - b. Removal of existing and installation of new metal gravel stop and fascia.
 - c. Removal of existing and installation of new metal coping.
 - d. Removal of existing deteriorated wood blocking and installation of new moisture resistant wood blocking around perimeter.
(See Bid Form for Unit Prices)
 - e. Removal of existing, and installation of new metal coping.
 - f. Removal of existing ,and installation of new curb flashing and sheet metal.
 - g. Installation of new walk pads and pipe supports.
 - h. Pay fees related to the work, including but not limited to permit fees, plan review fees, and other fees required by authorities having jurisdiction.
- C. Contract documents indicate the work of the contract and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the Contract Documents include but are not necessarily limited to the following:
 - 1. Work to be performed concurrently by the Owner and / or under separate contract, if any.
- D. Summary by reference: The work for the General Construction Contract can be summarized by reference to the requirements of the various contract documents, which in turn make reference to the requirements of the other applicable provisions which control or influence the work; and these references can be summarized but are not necessarily limited to the following:
 - 1. The executed Owner-Contractor Agreement (not bound herewith).

2. The General Conditions (not bound herewith).
3. The Supplementary Conditions, which are bound herewith.
4. The Drawings, which are listed in the "List of Contract Drawings" as of the date of these contract documents, and bound herewith (in this Project Manual).
5. The Specification Sections, which are bound herewith and are listed in the "Table of Contents" bound herewith (in this Project Manual).
6. The Addenda and Modifications to the Contract Documents, which have either been bound herewith (in this Project Manual) or distributed by transmittal subsequent to the binding hereof.
7. Governing regulations, which have a bearing on the performance of the work; copies can be obtained from or reviewed at the local, State, or Federal Agency responsible for the regulation in each case.
8. Submittals (of every kind), copies of which are retained by the Contractor at the site.
9. Miscellaneous elements of information having a bearing on the performance of the work, such as weather forecasts and reports of general trade negotiations; copies must be obtained by the Contractor through normal channels of information.

1.3 CONTRACTOR'S USE OF PREMISES

- A. Before construction is started the Sub-Contractors shall confer with the Architect, and the Owner and arrange for available trucking and storage space for the delivery of materials, storage space for materials and equipment and parking space for workmen.
- B. Construction operations and storage of materials and equipment shall be restricted to areas of the site mutually agreed upon and in such a manner as not to block access of fire fighting equipment to the building and facilities.
- C. The facility will remain in operation during the renovation and construction process.

1.4 PROJECT UTILITIES

- A. Water and electric power required for construction activities will be provided to the Contractor from the Owner's utility system at no cost for consumption.
- B. Temporary line connections to any line services of the Owner shall not be made without prior approval of the Owner.
- C. Known existing utility lines that are to remain permanently or temporarily in service shall be carefully protected from damage or dislocation and any damage to these lines shall be repaired at no additional cost to the Owner.
- D. The term "utility lines" shall be understood to include but not be limited to: water lines, gas lines, sanitary sewers, storm sewers, electric power lines, communication lines and appurtenances such as manholes, catch basins, fire hydrants, valves, junction boxes and switches.

1.5 DRAWINGS AND SPECIFICATIONS

- A. The intent of the Drawings and Specifications is to provide the Owner with complete, usable facilities, as specified and as indicated on the Drawings. Where items are shown on the Drawings and not included in the specifications, for the purpose of this contract, these items shall be considered as also being included in the specifications. Where items are included in the specifications and not shown on the Drawings, for the purpose of this contract, these items shall be considered as also being included in the Drawings.
 - 1. Where conflict occurs between items specified and items shown on the Plans the Contractor shall contact the Architect for a clarification.
 - 2. Where there is a conflict between "Contract Documents" the Contractor is responsible for the greater in quality or quantity.

1.6 VERIFICATION OF DIMENSIONS

- A. Dimensions, elevations, and locations shown on the drawings in reference to existing structures and utilities are the best available data obtainable but are not guaranteed by the Architect or the Owner and neither the Architect nor the Owner shall be responsible for their accuracy.
- B. Before proceeding with any work dependent upon the data involved, the Contractor shall field check and verify all dimensions, grades, line levels or other conditions of limitations at the site and building to avoid construction errors. If any work is performed by the Contractor or by his Subcontractors prior to adequate verification of applicable data, any resultant extra cost for adjustment of work to conform to existing limitations shall be borne by the Contractor without reimbursement or compensation by the Owner.

1.7 SUBSTANTIAL COMPLETION OF THE WORK

- A. Upon substantial completion, payments for work in the substantially complete portion of the work shall be released to the Contractor, except for the retainage and an amount to cover the cost of the incomplete or deficient items included in the punch list made at the inspection to determine substantial completion. This amount shall be approximately the value of the punch list items as estimated by the Architect.

1.8 BUILDING PRODUCTS USE

- A. It is the responsibility of the Contractor to inform himself concerning the application of the products he uses and to follow the directions of the Architect and manufacturer.
- B. In the event of disagreement between the Contract Documents and the manufacturer's directions, the Contractor will obtain written instructions from the Architect before proceeding with the installation.
- C. If the Contractor has knowledge of or reason to believe the likelihood of failure, he will transmit such knowledge to the Architect, and ask for written instructions before proceeding with the work.

1.9 VERIFICATION OF EXISTING CONDITONS

- A. Before proceeding with any work dependent upon the data involved, the Contractor shall field check and verify existing roof substrate for defective material.
- B. In the event of defective material is discovered, the Contractor will notify the architect before proceeding with the installation.
- C. All defective material shall be quantified and priced accordingly. Contractor may not proceed with the work until approval by the Owner, and written notice to proceed from the Architect.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 11 00

SECTION 01 22 00 - UNIT PRICES**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. This Section includes administrative and procedural requirements for establishing unit prices.
- B. Related Sections include the following:
 - 1. Division 07 Section "EPDM Roofing".

1.3 DEFINITIONS

- A. Unit price is a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit price includes all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Owner reserves the right to reject Contractor's measurement of work-in-place as determined by measurement rates for unit pricing, and have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- C. Measurement: Measurement rates for unit pricing is included in PART 3 – EXECUTION, of this section. Reference other Specification Sections 00 41 00 – BID FORM.

1.5 PRODUCTS (Not Used)**PART 2 - EXECUTION****2.1 MEASUREMENT RATES FOR UNIT PRING**

- A. Unit Price No. 1: 2 X Moisture Resistant Wood Blocking
 - 1. Description: Inspect for deteriorated perimeter wood blocking and replace as determined during construction. Unit price is not to be included in Base Bid, and is to be listed separately in space provided on the Bid Form.
- B. Unit Price No. 2: Replace unsuitable flat roof insulation.
 - 1. Description: Inspect for deteriorated roof insulation and replace as determined during construction.
 - 2. Base quantity: 50 sf

- C. Unit Price No. 2: Replace unsuitable tapered roof insulation.
 - 1. Description: Inspect for deteriorated roof insulation and replace as determined during construction.
 - 2. Base quantity: 50 sf

END OF SECTION - 01 22 00

SECTION 01 23 00 - ALTERNATES

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. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES (BOWERS ELEMENTARY SCHOOL)

- A. Add Alternate No.1:
Tear-off and re-roof portion of building noted as "Area B"
(approximately 1,339 square feet)

- B. Add Alternate No. 2:
Tear-off and re-roof portion of building noted as "Area C"
(approximately 1,220 square feet)

END OF SECTION 01 23 00

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's Application and Certification for Payment.
- B. Section specifies administrative and procedural requirements governing each prime Contractor's Application and Certification for Payment.
 - 1. Coordinate the Schedule of Values and Application and Certification for Payment with the Contractor's Construction Schedule, List of Subcontracts, and Submittal Schedule.
- C. Related sections.
 - 1. Division 01 Section "Submittals Procedures" for the Contractor's Construction Schedule and Submittal Schedule.

1.3 SCHEDULE OF VALUES

- A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
- B. Each prime Contractor shall coordinate preparation of its Schedule of Values for its part of the Work with preparation of the Contractors' 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 and Certification for Payment form.
 - c. List of subcontractors.
 - d. List of products.
 - e. List of principal suppliers and fabricators.
 - f. Schedule of submittals.
 - 2. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application and Certification for Payment.
 - 3. Sub-Schedules: Where the Work is separated into phases that require separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- C. Format and Content: Use the Project Manual Table of Contents 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 the 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. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that have affected value.
 - g. Dollar value.
 - h. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications and Certification 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 and Certification 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 the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
6. Unit Cost Allowances: Show line item value of unit cost allowances as a product of unit cost times measured quantity as estimated from the best indication in the Contract Documents.
7. 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 and Certification for Payment. Each item in the Schedule of Values and Applications and Certification for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.
 - a. At the Contractor's option, 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.
8. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS AND CERTIFICATION FOR PAYMENT:

- A. Each Application and Certification for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
- B. The initial Application and Certification for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

- C. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application and Certification for Payment is the period indicated in the Agreement.
- D. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Applications and Certification for Payment.
- E. 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 schedules have been revised.
 - 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- F. Transmittal: Submit five (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 and one (1) copy of "Retainage Release" letter.
 - 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.
- G. Waivers of Mechanics Lien: With each Application for Payment submit waivers of mechanics liens from subcontractors or sub-subcontractors and suppliers for the construction period covered by the previous application.
 - 1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit final or full waivers.
 - 3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - 4. Waiver Delays: Submit each Application for Payment with the Contractor's waiver of mechanics lien for the period of construction covered by the application.
 - a. Submit final Application for Payment with or proceeded by final waivers from every entity involved with performance of Work covered by the application that could lawfully be entitled to a lien.
 - 5. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.
- H. 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 (preliminary if not final).
 - 5. Schedule of principal products.
 - 6. Submittal Schedule (preliminary if not final).

7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of permits.
 10. Copies of authorizations and licenses from governing authorities for performance of the Work.
 11. Initial progress report.
 12. Report of pre-construction meeting.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds (if required).
 15. Data needed to acquire Owner's insurance.
 16. Initial settlement survey and damage report, if required.
- I. 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.
- J. Administrative actions and submittals that shall precede or coincide with this application include:
1. Permits
 2. Site Cleanup
 3. Application for reduction of retainage, and consent of surety.
 4. Advice on shifting insurance coverages.
 5. Final progress photographs.
 6. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- K. 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 items specified for completion after Substantial Completion.
 3. Assurance that unsettled claims will be settled.
 4. Assurance that Work not complete and accepted will be completed without undue delay.
 5. Transmittal of required Project construction records to Owner.
 6. Proof that taxes, fees and similar obligations have been paid.
 7. Removal of temporary facilities and services.
 8. Removal of surplus materials, rubbish and similar elements.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 29 00

SECTION 01 31 10 - WEATHER DELAYS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes the following;
1. Prepare and submit request for extensions of Time based on weather conditions.
- B. Related Sections include the following:
1. Construction Schedules.
 2. Applications for Payment.

1.3 EXTENSIONS OF CONTRACT TIME

- A. If the basis exists for an extension of Time in accordance with the General Conditions, an extension of time on the basis of weather may be granted only for the number of Weather Delay Days in excess of the number of days listed in the standard Baseline for that month.

1.4 STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE

- A. The State of Tennessee has reviewed weather data available from the National Oceanic and Atmospheric Administration and determined a Standard Baseline of average climatic range for the State of Tennessee.
- B. Standard Baseline shall be regarded as the normal and anticipatable number of calendar days for each month during which construction activity shall be expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is included in the Work and is not eligible for extension of Contract Time.
- C. Standard Baseline for each month of the years is as follows (the anticipatable delay days follow the month):

| | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 12 | 11 | 8 | 7 | 7 | 6 | 7 | 5 | 4 | 5 | 6 | 11 |

1.5 ADVERSE WEATHER AND WEATHER DELAY DAYS

- A. Adverse Weather is defined as the occurrence of one or more of the following conditions, substantiated by NOAA data, which prevents exterior construction activity or access to the site within twenty-four (24) hours:

1. Precipitation threshold (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure. Snow to liquid measure ration is 10:1.
 2. Standing snow in excess of one inch (1.00").
- B. Additional extension of Time may be granted for drying days following periods of two or more consecutive days of precipitation for the following conditions:
1. At a rate of one day extension of Time for each period of two or more consecutive days of precipitation of 1.0 inch or more (liquid measure).
 2. Only if there is a hindrance to site access or site work, such as excavation, backfill and footings and the like and then only when no such work is performed.
- C. A Weather Delay Day may be counted only if adverse weather prevents works on the Project for fifty percent (50%) or more of the contractor's scheduled work day, including a weekend day or holiday if Contractor has scheduled construction activity that day.

1.6 DOCUMENTATION AND SUBMITTALS

- A. Contractor shall submit on a monthly basis daily job site work logs (daily reports) showing which, and to what extent, construction activities have been adversely affected by weather.
- B. Submit actual weather data, if requested by Architect to support claim for time extension, as obtained from NOAA weather reporting station at McGhee-Tyson Airport (Knoxville) or NOAA weather reporting station in Morristown.
- C. Use Standard Baseline data provided in this Section when documenting actual delays due to weather in excess of the average climatic range.
- D. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods, and submit in accordance with the procedures for Claims established in paragraph 7.4 of the General Conditions.
- E. Extensions of Time requested by the Contractor and approved by the Architect on the basis of conditions stated above shall be acknowledged and communicated in writing to the Contractor periodically.
- F. For extensions of Contract Time granted, a modification shall be issued in accordance with the provisions of Article 8 of the General Conditions, and the applicable General requirements. Modifications for extensions of Time may be held to the end of the Project or as appropriate based on Architect's approval of such extensions as noted in E above.
- G. Extensions of Time not requested in a timely manner by the Contractor will not be granted at a later time.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 31 10

SECTION 01 32 00 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
 - 1. Pre-Construction Conference.
 - 2. Coordination Meetings.
 - 3. Progress Meetings.
 - 4. Construction schedules are specified in other Division 01 Sections.

1.3 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location on a date and time agreed to by the Owner and Contractor after execution of the Agreement, and prior to 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 Application and Certification for Payment
 - 6. Distribution of Contract Documents
 - 7. Submittal of Shop Drawings, Product Data and Samples
 - 8. Preparation of Record Documents
 - 9. Use of the premises
 - 10. Office, Work and storage areas
 - 11. Equipment deliveries and priorities
 - 12. Safety procedures
 - 13. First aid
 - 14. Security
 - 15. Housekeeping
 - 16. Working hours

1.4 COORDINATION MEETINGS

- A. Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.5 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 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. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 2. 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 three (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.
- E. Schedule Updating: Revise 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.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 32 00

SECTION 01 33 00 - SUBMITTALS PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;
 - 1. Contractor's construction schedule.
 - 2. Shop Drawings.
 - 3. Product Data.
 - 4. Samples.
- B. Administrative Submittals: Refer to other Division 01 Sections and other Contract Documents for requirements for administrative submittals. Such submittals may include, but are not limited to:
 - 1. Permits.
 - 2. Application and Certification for Payment.
 - 3. Performance and Payment Bonds.
 - 4. Insurance certificates.
 - 5. List of Subcontractors.

1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
 - 3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
 - a. Allow two weeks (ten working days minimum) for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.

- b. If an intermediate submittal is necessary, process the same as the initial submittal.
 - c. Allow two weeks (ten working days minimum) for reprocessing each submittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4 x 5 inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken. Provide a smaller clear area for Architect's review stamp.
 2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 - j. Provide a unique sequential number for each submittal.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
1. On the transmittal, record relevant information and requests for data. On the form, or on a separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
 2. The contractor shall include on the transmittal for each submittal, a unique sequential number for each submittal, starting with the number 1, as indicated above.

1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor's construction schedule. Submit within 30 days of the date established for "Commencement of the Work".
1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".

2. Within each time bar indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the Work.
 5. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.
 6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner prior to Substantial Completion.
- C. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.
- D. Area Separations: Provide a separate time bar to identify each major construction area for each major portion of the Work. Indicate where each element in an area must be sequenced or integrated with other activities.
- E. Cost Correlation: At the head of the schedule, provide a two item cost correlation line, indicating, "pre-calculated" and "actual" costs. On the line show dollar-volume of Work performed as of the dates used for preparation of payment requests.
1. Refer to Section "Applications for Payment" for cost reporting and payment procedures.
- F. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
1. When revisions are made, distribute 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 construction activities.
- G. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5 SHOP DRAWINGS

- A. Shop drawings are not required unless deviations to the contract documents are requested by the contractor.
- B. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- C. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
 - 1. Dimensions.
 - 2. Identification of products and materials included.
 - 3. Compliance with specified standards.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurement.
 - 6. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2 x 11 inches, but no larger than 36 x 48 inches.
 - 7. Electronic submittals will be considered. Coordinate with Architect for electronic submittal requirements.
- D. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
- E. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.
- F. Preparation of coordination Drawings is specified in section "Project Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
- G. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.6 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
 - 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are

not required, mark copies to indicate the applicable information. Include the following information:

- a. Manufacturer's printed recommendations.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
 3. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.
 4. Submittals: Submit two copies of each required submittal; submit four copies where required for maintenance manuals. The Architect will retain one, and will return the other marked with action taken and corrections or modifications required.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.7 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
 1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's Sample. Include the following:
 - a. Generic description of the Sample.
 - b. Sample source.
 - c. Product name or name of manufacturer.
 - d. Compliance with recognized standards.
 - e. Availability and delivery time.
 2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.

- c. Refer to other Specification Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
- 3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
 - a. Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.
- 4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit minimum three (3) sets; one will be returned marked with the action taken.
- 5. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- 6. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
 - a. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.
 - 1) Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.8 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. "Conforms with design concept": Work may proceed providing it complies with Contract Documents.
 - 2. "Conforms with design concept as noted": Work may proceed providing it complies with notations on submittal and with the Contract Documents.
 - 3. "Revise as noted and Resubmit": Do not proceed with work. Revise submittal in accordance with notations thereon and resubmit to obtain a different action marking. Do not allow submittals with this action marking to be used in connection with performance of the work. In resubmitting, limit corrections to the items marked.

4. "Rejected": Do not proceed with the work. Submittal is rejected for non-compliance with the Contract Documents or other justified cause. Correct the submittal and resubmit to obtain a different action marking. Do not allow submittals with this action marking to be used in connection with the performance of the work.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Workmanship
 - 2. Manufacturer's Instructions
 - 3. Manufacturer's Certificates
 - 4. Field Samples
 - 5. Manufacturer's Field Services
 - 6. Testing Laboratory Services

1.3 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.4 MANUFACTURER'S INSTRUCTIONS

- A. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Architect before proceeding.

1.5 MANUFACTURER'S CERTIFICATES

- A. When required by individual specification sections, submit manufacturer's certificate, in duplicate, that products meet or exceed specified requirements.

1.6 FIELD SAMPLES

- A. When required by individual specification sections, construct field samples at Project and at location acceptable to the Architect.
- B. Construct field sample complete and finished incorporating products and procedures specified for the Work.
- C. Upon acceptance by the Architect, use as a standard for the Work.

- D. When directed by the Architect, remove field samples from the Project.

1.7 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual specification sections, require supplier or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, or test, adjust, and balance of equipment as applicable, and to make appropriate recommendations.
- B. Representative shall submit written report to Architect listing observations and recommendations.

1.8 TESTING LABORATORY SERVICES

- A. Owner shall pay for services of an Independent Testing Laboratory to perform inspections, tests, and other services required by other individual specification sections.
- B. Services will be coordinated by the contractor and performed in accordance with requirements of governing authorities and with specified standards.
- C. Reports will be submitted to the Architect in duplicate giving observations and results of tests, indicating compliance or non-compliance with specified standards and with Contract Documents.
- D. Contractor shall cooperate with Testing Laboratory personnel; furnish tools, samples of materials, submittal data, equipment, storage and assistance as required.
 - 1. Notify Architect and Testing Laboratory 24 hours prior to expected time for operations requiring testing services.
 - 2. Make arrangements with Testing Laboratory and pay for additional samples and tests for Contractor's convenience.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

PART 4 - END OF SECTION 01 40 00

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. General: Where codes and standards are referenced in this and other sections of the specifications or on the drawings, whether or not a particular edition is referenced, it is the intention that these be the latest editions as adopted by the governing agency under whose jurisdiction the project is to be constructed, on the date approval is granted for construction to begin.

1.3 CODES

- A. Work shall conform to the requirements of the currently adopted International Code Council series building codes, including any amendments or revisions, as adopted by the Authority Having Jurisdiction.
- B. Work shall conform to the requirements of the currently adopted Life Safety Code, NFPA 101, including any amendments or revisions, as adopted by the Authority Having Jurisdiction.
- C. Work shall conform to the requirements of the currently adopted accessibility code, including any amendments or revisions, as adopted by the Authority Having Jurisdiction. Where multiple authorities, having different code requirements, have jurisdiction over the work, conform to the most stringent requirements.

1.4 CODE STANDARDS

- A. ASTM D1557-12; Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

1.5 REGULATIONS

- A. Site work shall conform to applicable regulations of the State of Tennessee, Department of Insurance.

1.6 MATERIAL AND TESTING STANDARDS

- A. Components of the work shall conform to requirements of the American Society for Testing and Materials (ASTM) Standards, American National Standards Institute (ANSI) Standards and Trade Association Standards, as listed in the various other sections of the specifications.

1.7 MANUFACTURER'S RECOMMENDATIONS

- A. When work in accordance with the manufacturer's recommendation is specified, a copy of these recommendations shall be kept in the job office.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.
- B. Temporary utilities required include but are not limited to:
 - 1. Water: Provided by Owner for Contractor's use on site.
 - 2. Temporary lighting: Provided by Owner for Contractor's use on site.
 - 3. Telephone and Facsimile service: Provided by Contractor.
- C. Temporary construction and support facilities required include but are not limited to:
 - 1. Storage sheds.
 - 2. Sanitary facilities.
 - 3. Temporary Project identification signs and bulletin boards.
 - 4. Waste disposal services.
 - 5. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities required include but are not limited to:
 - 1. Barricades, warning signs, lights.
 - 2. Environmental protection.

1.3 SUBMITTALS

- A. Temporary Utilities: Submit list of temporary utilities.
- B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.

1.4 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
 - 1. Code requirements.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police, Fire Department and Rescue Squad regulations.
 - 5. Environmental protection regulations.

1.5 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
 - 1. For safety barriers, provide minimum 5/8 inch thick exterior plywood.
- B. Water: Provide potable water approved by local health authorities.
- C. Open-Mesh Fencing: Provide 11 gage, galvanized 2 inch mesh, chain link fabric fencing 6 feet high with galvanized steel pipe posts, minimum 1 5/8 inch O.D. for line posts and minimum 2 3/8 inch O.D. for corner posts.

2.2 EQUIPMENT

- A. General: Provide new equipment; if acceptable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4 inch heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
- D. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- E. Temporary Offices: The remodeled classroom space is closed off to the rest of the school operations and may be used for temporary office within the work area.
- F. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated re-circulation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

- G. First Aid Supplies: Comply with governing regulations.
- H. Fire Extinguishers: Provide hand-carried, portable UL-rated, Class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
 - 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect, and will not be accepted as a basis of claims for a Change Order.
- B. Temporary Lighting: Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions
- C. Temporary Telephones and Facsimile: Provide temporary telephone and facsimile service for all personnel engaged in construction activities, throughout the construction period. Install telephone on a separate line for each temporary office and first aid station. Where an office has more than two occupants, install a telephone for each additional occupant or pair of occupants. Only one job site facsimile is required.
 - 1. At each telephone and fax post a list of important telephone / fax numbers.

3.3 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

- A. Field Office: Keep the office clean and orderly for use for small progress meetings.
- B. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 - 1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.

- C. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
- D. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
 - 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 - 2. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
 - 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
 - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- C. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.
- D. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

- E. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
 2. Protection: Maintain markers for underground lines. Protect from damage during excavation operations.
- F. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of the Contractor.
 2. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.
 3. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:
 - a. Replace air filters and clean inside of ductwork and housings.
 - b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
 - c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION 01 50 00

SECTION 01 60 00 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 - 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.4 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
 - 1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.
- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
- B. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
- C. 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.
- D. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
- E. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
- F. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
- G. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
- H. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
 - 1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
 - 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

1. Semi-Proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
 - a. Where products or manufacturers are specified by name, accompanied by the term "or equal," "or approved equal" or "or approved substitute" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
2. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the General Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
3. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
4. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
5. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
6. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 01 for allowances that control product selection, and for procedures required for processing such selections.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS:

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
- B. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01 60 00

SECTION 01 63 00 - SUBSTITUTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the requirements for requesting approval of proposed substitutions.
- B. Substitutions will not be considered prior to receipt of bids.
- C. Delays caused by tardiness of Contractor in preparing and forwarding submittals do not constitute an acceptable basis for consideration of substitute products.
- D. Delays due to factors which were in effect prior to project bidding do not constitute an acceptable basis for consideration of substitute products.

1.3 LIMITATIONS OF SUBSTITUTIONS

- A. Substitutions will not be considered when indicated on shop drawings or product data submittals without separate formal request complying with "submittal procedures" specified in this section.
- B. Substitutions will not be considered unless submitted through the General Contractor.
- C. Additional studies, investigations, submittals, redesign and/or analysis by the Architect/Engineer caused by the requested substitutions shall be paid by the Contractor at no expense to the Owner.
- D. Substitute products shall not be ordered or installed without written acceptance.
- E. Only one request for substitution for each product will be considered. When a substitution is not accepted by the Architect, provide the specified product.
- F. Architect's decision shall be final concerning the acceptability of all substitutions.

1.4 REQUESTS FOR SUBSTITUTIONS

- A. Contractor's Representation:
 - 1. Request of substitution constitutes a representation that the Contractor has investigated the proposed product and has determined that it is equal to or superior in all respects to the specified product.
 - 2. Request for substitution constitutes a representation that the Contractor will provide same type of warranty for substitution as for specified product.

- Contractor's warranty shall be in writing guaranteeing all substituted products have same or superior performance as the product specified.
3. Request for substitution constitutes a representation that the Contractor will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
 4. Request for substitution constitutes a representation that the Contractor waives all claims for additional costs related to substitutions that consequently become apparent.
 5. Request for substitution constitutes a representation that the cost data is complete and includes all related cost under his Contract, but excludes any approved Architect's design fees required by substitution.
 6. Request for substitution constitutes a representation that the Contractor has thoroughly investigated the proposed substitute to determine if license fees and royalties are pending on the proposed substitutes, for compliance with Article 3.17 of General Conditions of the Contract / AIA Document A201-2007 Edition.
- B. Requests for substitutions shall be submitted on "Substitution Request Form - Section 01 63 10" attached in this Project Manual. Legible copies of this form shall be made as required for Contractor's submittals. Each submittal request form shall be complete with data substantiating compliance of proposed substitution with requirements of Contract Documents and shall include, but not be limited to, the following information.
1. Project title and Architect's project number.
 2. Identification of product specified including Specifications Section and Paragraph number.
 3. Identification of proposed substitute complete with manufacturer's name and address, trade name of product, and model or catalog number. Attach product data as specified in Section 01 33 00 - Submittal Procedures.
 4. List of fabricator and supplier (with address and phone number) for proposed substitute.
 5. The affect of the substitution on dimensions, material thickness, wiring, piping, ductwork, etc., indicated in Contract Documents.
 6. The affect of substitution on other trades.
 7. The affect of substitution on construction schedule.
 8. Differences in quality and performance between specified product and proposed substitute.
 9. Comparison of manufacturer's guarantees of specified product and proposed substitute.
 10. Availability of maintenance services and replacement materials for proposed substitute.
 11. Cost data comparing proposed substitute with specified product, and amount of net change to Contract Sum.
 12. License fees and/or royalties pending on proposed substitute.

END OF SECTION 01 63 00

SECTION 01 63 10 - SUBSTITUTION REQUEST FORM

GENERAL: All Requests for Substitution must be made through the General Contractor. This form is part of the substitution requirements specified in Section 01 63 00.

PROJECT TITLE & NO. _____

TO. The Lewis Group Architects
6512 Deane Hill Drive
Knoxville, TN 37919
(865) 584-5000, fax: (865) 588-1272

Attn. _____

Specified Item: _____

Section: _____ Paragraph: _____

Proposed Substitute: _____

Attach complete description, catalog information, specification data and laboratory tests if applicable.

1. What effect will substitution have on dimensions, gauges, weights, etc., indicated in Contract Documents?
2. What effect will substitution have on wiring, piping, ductwork, etc. indicated in Contract Documents?
3. What effect will substitution have on other trades?
4. What effect will substitution have on construction schedule?
5. What are the differences in quality and performance between proposed substitute and specified product?
6. Manufacturer guarantees of the specified products and proposed products are: Same/Different (Explain differences)
7. List (on separate sheet) the availability of maintenance services and replacement materials for proposed substitute.
8. List (on separate sheet) names, address and phone numbers of fabricators and suppliers for proposed substitutes.
9. If the substitution request is accepted, it will result in: No cost impact (Y) (N)
Credit amount \$ _____ Added Cost amount \$ _____
10. There ARE ___ ARE NOT ___ license fees and royalties pending on the proposed substitute.

SECTION 01 73 29- CUTTING AND PATCHING**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Divisions 02 through 49 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching.

PART 2 - PRODUCTS**2.1 MATERIALS**

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

- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 2. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations

3. Proceed with patching after construction operations requiring cutting are complete.
 4. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 5. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 6. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
- C. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, and other foreign materials.

END OF SECTION 01 73 29

SECTION 01 77 00 - PROJECT CLOSEOUT**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Final Inspection.
 - 2. Contract Closeout Submittal.
 - 3. Operation and Maintenance Data.
 - 4. Warranty Data.
 - 5. Demonstration and Training.
 - 6. Final Application for Payment.
- B. Related Sections include the following:
 - 1. Specific requirements for the Work are included in the individual Sections of Divisions 02 through 49.

1.3 FINAL INSPECTION

- A. When the Contractor determines the work is complete he shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. The work has been inspected for compliance with Contract Documents by a qualified person authorized by the Contractor.
 - 3. The work is complete in accordance with the Contract Documents.
 - 4. Equipment and systems have been tested and demonstrated in the presence of the Owner's representative, and are operational.
 - 5. The work is ready for final inspection.
- B. Within a reasonable time after receipt of the certification the Architect will schedule an inspection to verify completion.
- C. Should the Architect consider the work incomplete or defective, he will promptly notify the Contractor in writing listing incomplete or defective work. The Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification when the work is complete. The Architect will reinspect the work.

1.4 CONTRACT CLOSEOUT SUBMITTAL

- A. Submit to the Architect as a single package including:
 - 1. Project Data; ie. as-built drawings.
 - 2. Operation and Maintenance Data.

3. Warranty Data.
4. Certificate of Occupancy and other approvals or permits required by Authorities Having Jurisdiction.
5. Contractor's Affidavit of Payment of Debts and Claims, AIA G706.
6. Contractor's Affidavit of Release of Lien, AIA G706A.
7. Subcontractor's and Suppliers' Affidavit of Release of Lien.
8. Consent of Surety to Final Payment, AIA G707, with Power of Attorney.
9. Consent of Surety to Reduction in or Partial Release of Retainage, AIA G707A, with Power of Attorney.

1.5 OPERATION AND MAINTENANCE DATA

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.
 4. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- B. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
- C. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Provide tab labels or inserts securely attached to the divider sheet. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
- D. Submit two copies of the complete manual prior to inspection for Substantial Completion. Include a complete operation and maintenance directory.

1.6 WARRANTY DATA

- A. Warranties: Submit required warranties in a heavy-duty, two inch, 3-ring, vinyl-covered, loose-leaf binder organized into the appropriate divisions with marked divider tabs. Include a Table of Contents in the front of the binder listing warranties.
- B. Submit one copy of the complete warranty data prior to inspection for Substantial Completion.

1.7 DEMONSTRATION AND TRAINING

- A. Coordinate schedule of demonstration and training with Designer and Owner's personnel for all installed equipment and systems.

- B. If conditions (such as season of year) do not allow for a complete demonstration or training of equipment and systems operation during one meeting session; then coordinate a schedule that shall provide a sufficient number sessions within the warranty period.
- C. Submit lists of Contractor's Service Personnel who are to be contacted if problems arise with installed equipment or systems. Personnel named must be familiar with installed equipment and systems. Submit updated lists through the duration of the Warranty period, as needed, if Contractor's Service Personnel changes.
- D. Conduct initial demonstration and training prior to Substantial Completion inspection.
- E. Substantial Completion shall not be certified, nor shall Owner be required to assume responsibility for operating, maintaining, or insuring system, prior to initial demonstration and training.
- F. Instruct Owner's personnel in operation, adjustment, and maintenance of equipment and systems; using the manufacturer's printed operating and maintenance data that is specific to the actual-installed equipment and systems as the basis of instruction.
 - 1. For each training event performed, submit two (2) professional grade DVD copies documenting the training event with Project Data Binders. Submit each disk in a standard protective hard plastic DVD disk container. Label both the disk and the container to include the full project title and short description of training documented by each disk.
- G. Submit one copy of Demonstration and Training certification prior to inspection for Substantial Completion. Demonstration and Training Certification must include the following information for each piece of equipment or system:
 - 1. Description of equipment or system.
 - 2. Date and location of demonstration and training for each piece of equipment or system.
 - 3. Name, company name, address and telephone number of person providing demonstration and training.
 - 4. Name, company name, address and telephone number of person receiving demonstration and training.

1.8 FINAL APPLICATION FOR PAYMENT

- A. The Contractor shall submit the Final Application for Payment accompanied by a settlement of accounting, reflecting all adjustments to the Contract Sum.
 - 1. The Original Contract Sum.
 - 2. Additions and Deductions resulting from:
 - a. Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for non-conforming work.
 - e. Other adjustments.
 - 3. Total Contract Sum as adjusted.

4. Previous Payments.
 5. Sum Remaining Due.
- B. Signed Final Change Order by the Contractor (if required) with a cover letter certifying that, to the best of his knowledge, the project is in compliance with the Contract Documents and the balance shown is due and payable.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 77 00

SECTION 02 41 19 - - SELECTIVE DEMOLITON**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of roofing materials, metal fascia, and flashings.
- B. Related Requirements:
 - 1. Section 01 10 00; "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
 - 2. Section 01 50 00 "Temporary Facilities and Controls."
 - 3. Section 01 73 29 "Execution" for cutting and patching procedures.

1.3 DEFINITIONS

- A. Remove: Demolish existing roofing materials, and legally dispose of them off-site unless indicated to be removed and salvaged.
- B. Remove and Salvage: Detach items from existing construction using gentle methods and equipment to prevent damage to the item and exposed surfaces. Tag each item on a concealed surface in accordance with submittal requirements (except for brick masonry units which need not be tagged). Store items on-site for reinstallation into future new or renovation work.
- C. Existing to Remain: Leave existing items that are not indicated to be removed in accordance with A or B above and protect from damage by adjacent demolition activities as needed to maintain the items in their condition prior to the start of demolition activities.

1.4 MATERIALS OWNERSHIP

- A. Items designated to be removed and not designated as existing to remain or not designated for salvage shall be identified as demolition waste which shall become property of the Contractor..

1.5 PRE-DEMOLITION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction within the scope of this section.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by all other trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
5. Review areas where existing construction is to remain and requires protection.

1.6 QUALITY ASSURANCE

- A. Qualification Data: For approval prior to procurement of applicable trade, roofing contractors shall including examples of work performed in the past five years.

1.7 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- B. Proposed Storage Measures: Submit report that indicates the measures proposed for protection and storage of salvaged items to be reused.
- C. Schedule of Selective Demolition Activities: Indicate the following:
 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's adjacent facility operations are uninterrupted.
 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 3. Coordination for shutoff, capping, and continuation of utility services.
- D. Pre-demolition Photographs: Show existing conditions of adjoining construction, including finish surfaces, which might be misconstrued as damage caused by demolition operations. Submit before work begins.

1.8 ACTION SUBMITTALS

- A. Shop Drawings - Plans and elevations with keyed salvaged item tags for re-assembly / re-installation.

1.9 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Notify Architect of discrepancies between existing conditions and drawings before proceeding with selective demolition.
- C. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain data and communications services as necessary to coordinate with simultaneous work on the site.

1.10 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations and ongoing construction on the project site.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards:
 - 1. Comply with ASSE A10.6 and NFPA 241

PART 3 - EXECUTION

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

- A. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."

3.2 PREPARATION

- A. Verify that exposed utility lines have been marked and protected, or disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

- C. Survey of Existing Conditions: Record existing roof condition by use of preconstruction photographs.
 - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations. Tag photographic images to match shop drawing requirements.
- D. Existing Conditions: Before beginning site work, investigate and verify the existence and location of exposed utility services on the roof that affect the Work.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Utility lines across roof are to remain in service during construction..

3.4 PROTECTION

- A. Temporary Protection: Provide temporary barricades required to prevent injury to people and damage to equipment.
 - 1. Provide protection to ensure safe passage of people around selective demolition area.
 - 2. Refer to Section 015000 "Temporary Facilities and Controls."
- B. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION

- A. The contractor shall perform the following work:
 - 1. Exterior roofing demolition as indicated on the drawings.
- B. Remove existing construction as indicated (General): Use methods required to complete the work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level. Avoid excessive vibration to the original School building that shall remain in place.
 - 2. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during and after flame-cutting operations.
 - 3. Maintain adequate ventilation when using cutting torches.
 - 4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 6. Dispose of demolished items and materials promptly.
- C. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Comply with requirements for access and protection specified in Section 01 50 00: "Temporary Facilities and Controls."
- 3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC AREAS AND MATERIALS
- A. Exterior Demolition:
1. Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, using methods least likely to damage existing adjacent finishes. Preserve existing architectural elements and structural integrity of the existing roof structure.
 2. Temporarily cover openings when exposed.
 3. As work progresses, maintain a temporary weather-tight enclosure at the exterior of the building.
 4. Protect and avoid damage to the brick masonry unit during all removal and salvage operations.
- 3.7 DISPOSAL OF DEMOLISHED MATERIALS
- A. General: Except items or materials indicated to remain or be salvaged and reinstalled, or otherwise indicated to remain as Owner's property, remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.

3.8 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began. Maintain protection of existing to remain construction and salvaged materials.
- B. Cleanup and Disposal
 - 1. The Contractor will be required to submit to the Architect an approval letter from the landfill of their choice indicating that the landfill will accept such lead-based paint waste and debris prior to starting the demolition activities.

END OF SECTION 02 24 19

SECTION 06 10 53 - MISCELLANEOUS ROUGH CARPENTRY**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Wood blocking and nailers.
- B. Related Sections include the following:
 - 1. Division 09 Section "Gypsum Board".

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. SPIB: The Southern Pine Inspection Bureau.
 - 4. WCLIB: West Coast Lumber Inspection Bureau.
 - 5. WWPA: Western Wood Products Association.

1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - 3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 - 4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Comply with performance requirements in AWPA C20 (lumber).
 - 1. Use treatment that does not promote corrosion of metal fasteners.
 - 2. Use Exterior type for exterior locations and where indicated.
- B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Application: Treat items indicated on Drawings, and the following:
 - 1. All concealed blocking.

2.4 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 15 percent maximum moisture content of any species.
- C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
 - 1. Mixed southern pine, No. 2 grade; SPIB.
 - 2. Hem-fir or hem-fir (north), Construction or 2 Common grade; NLGA, WCLIB, or WWPA.
 - 3. Spruce-pine-fir (south) or spruce-pine-fir, Construction or 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
- D. For blocking not used for attachment of other construction Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where carpentry is: exposed to weather; in ground contact; pressure-preservative treated; fire retardant treated; or in area of high relative humidity; provide fasteners with hot-dip zinc coating complying with ASTM A153 or of Type 304 stainless steel.
 - a. Fasteners other than nails, timber rivets, wood screws and lag screws may be mechanically deposited zinc coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.
- B. Nails, Brads, and Staples: ASTM F1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- F. Lag Bolts: ASME B18.2.1.

- G. Bolts: Steel bolts complying with ASTM A307, Grade A; with ASTM A563 hex nuts and, where indicated, flat washers.
- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class Fe/Zn 5.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- D. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as required by Authorities Having Jurisdiction.
- E. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- F. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.
- G. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. International Building Code, Chapter 23.
- H. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install

fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 WOOD FURRING INSTALLATION

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

END OF SECTION 06 10 53

SECTION 07 54 23 - THERMOPLASTIC POLYOLEFIN (TPO) ROOFING**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Adhered TPO membrane roofing system.
 - 2. Roof insulation, mechanically attached.
- B. Related Sections:
 - 1. Section 06 10 53 - Miscellaneous Rough Carpentry, for wood nailers, curbs, and blocking.
 - 2. Section 07 62 00 - Sheet Metal Flashing and Trim, for metal roof penetration flashings, flashings, and counterflashings.
 - 3. Section 07 92 00 - Joint Sealants" for joint sealants, joint fillers, and joint preparation.
 - 4. Division 22 Sections for roof drains.

1.3 DEFINITIONS

- A. TPO: Thermoplastic polyolefin.
- B. Roofing Terminology: See ASTM D1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7.

- D. FM Approvals Listing: Provide membrane roofing, base flashings, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a membrane roofing system, and that are listed in FM Approvals' "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.
 - 1. Fire/Windstorm Classification: Class 1A-60
 - 2. Hail Resistance: MH
- E. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E1980, based on testing identical products by a qualified testing agency.
- F. Energy Performance: Provide roofing system that is listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.
- G. Energy Performance: Provide roofing system with initial solar reflectance not less than 0.70 and emissivity not less than 0.75 when tested according to CRR-1.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Base flashings and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Roof plan showing orientation of steel roof deck and orientation of membrane roofing and fastening spacings and patterns for mechanically fastened membrane roofing.
 - 4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Samples for Verification: For the following products, only if requested:
 - 1. Sheet roofing, of color specified, including T-shaped side and end lap seam.
 - 2. Roof insulation
 - 3. Walkway pads
 - 4. Metal termination bars
 - 5. Six insulation fasteners of each type, length, and finish.
 - 6. Six roof cover fasteners of each type, length, and finish.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer and manufacturer.
 - 1. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 - 2. Submit evidence of compliance with performance requirements.

- C. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.
 - D. Field quality-control reports.
 - E. Warranties: Sample of special warranties.
- 1.7 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For roofing system to include in maintenance manuals.
- 1.8 QUALITY ASSURANCE
- A. Manufacturer Qualifications: A qualified manufacturer that is [UL listed] [FM Approvals approved] for membrane roofing system identical to that used for this Project.
 - B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.
 - C. Source Limitations: Obtain components for membrane roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer.
 - D. Exterior Fire-Test Exposure: ASTM E108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
 - E. Fire-Resistance Ratings: Where indicated, provide fire-resistance-rated roof assemblies identical to those of assemblies tested for fire resistance per ASTM E119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - F. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review deck substrate requirements for conditions and finishes, including flatness and fastening.
 - 5. Review structural loading limitations of roof deck during and after roofing.

6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.
- G. Preinstallation Roofing Conference: Conduct conference at Project site.
1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 5. Review structural loading limitations of roof deck during and after roofing.
 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.
- 1.9 DELIVERY, STORAGE, AND HANDLING
- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
 - B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
 - C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
 - D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.10 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.
1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, substrate board, roofing accessories, and other components of membrane roofing system.
 2. Warranty Period: Twenty (20) years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
1. Warranty Period: Two (2) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 TPO MEMBRANE ROOFING

- A. Thermoplastic Polyolefin Sheet: ASTM D6878, uniform, flexible TPO sheet.
1. Basis of Design: Catalog numbers and product names listed are intended to indicate the minimum standard of quality required. Other manufacturers offering comparable products may be considered subject to prior approval by the Architect.
 - a. Firestone Building Products Company, Ultraply, Fully Adhered System.
 2. Thickness: 60 mils, nominal.
 3. Exposed Face Color: White.

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

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

- B. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic polyolefin sheet flashing, 55 mils thick, minimum, of same color as sheet membrane.
- C. Bonding Adhesive: Manufacturer's standard.
- D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- E. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- F. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.3 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by TPO membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
 - 1. Provide two (2) layers, 1-1/2 inches thick each, total thickness 3 inches, plus tapered insulation and cover board.
- B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48) unless otherwise indicated.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.4 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.
- B. Cover Board: Firestone, 1/2 inch thick, ISOGard HD.
- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation[and cover boards] to substrate, and acceptable to roofing system manufacturer.

2.5 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick, and acceptable to membrane roofing system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 - 3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section "Steel Decking."
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.5 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
 - 1. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.

- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. Install insulation and cover boards with long joints in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation/cover board material .
 - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- G. Mechanically Fastened Insulation and Cover Board: Install insulation and cover board and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 - 1. Fasten insulation according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.
 - 2. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

3.4 ADHERED MEMBRANE ROOFING INSTALLATION

- A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.
- B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.
- C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.
- E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.
- G. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
 - 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 - 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.
- H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

3.5 BASE FLASHING INSTALLATION

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

3.6 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.7 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- B. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.
- C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 07 54 23

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Flashing, Counterflashing and Sheet Metal.
- B. Related Sections include the following:
 - 1. Section 04 20 00 - Unit Masonry, for concealed flashings.
 - 2. Section 07 92 00 - Joint Sealants.

1.3 SUBMITTALS

- A. Product Data: For each type of roof hatch indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Samples; Flashing, Sheet Metal, Accessories: Submit 8 inch square samples of specified sheet materials to be exposed as finished surfaces. Submit full size samples, minimum of 2 feet wide, of each fascia and coping section for review by the Architect prior to installation.
- C. Shop drawings shall be coordinated with other building cladding products to accurately indicate substrate conditions and materials, the correct interface conditions at adjoining cladding systems, accurate details of the adjoining cladding components, interface flashings and or cavity closures. Provide isometrics to clearly indicate required construction sequencing. Provide layouts at 1/4 inch scale, details at 3 inch scale.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Manufacture and install manufactured roof edgings to resist thermally induced movement and exposure to weather without failing, rattling, leaking, and fastener disengagement.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- B. Water Infiltration: Provide manufactured roof edgings that do not allow water infiltration to building interior.

1.5 QUALITY ASSURANCE

- A. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Pack, handle, and ship materials properly labeled in heavy-duty packaging to prevent damage.
- B. Protect materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- C. Store materials off ground, under cover. Protect from damage and deterioration.
- D. Handle materials to prevent damage to surfaces, edges and ends of sheet metal items. Reject and remove damaged material from site.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.
- B. Coordinate layout and installation with adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.

1.9 WARRANTY

- A. Furnish written guarantee, countersigned by contractor and installing subcontractor, that work is unconditionally guaranteed to be watertight and free of defects and faulty workmanship for a period of two years from date of completion of the work.
- B. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D2244.

- b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum: ASTM B209, alloy 3003, temper H14. Provide pre-finished Kynar 500/Hylar 5000 finish. Colors to be selected from manufacturer's full color selection, excluding metallic colors.
 1. Gutters: 0.040 inch thickness.
 2. Gutters: over 25 to 30 inch girth; use minimum 0.063 inch thickness.
 3. Downspouts: use minimum 0.032 inch thickness.
 4. Flashing: use minimum 0.050 inch thickness.
 5. Counterflashing: use minimum 0.040 inch thickness.
 6. Gravel Stop: use minimum 0.050 inch thickness.
- B. Copper core flexible flashing with drainage fabric: at base of wall
 1. Characteristics:
 - a. Type: Engineered system, with high resistant to damage, composite with a copper with non-asphalt adhesive polymer fabric laminated to one copper and non-woven drainage fabric laminated to opposing face with non-asphalt adhesive.
 - b. Copper: ASTM B370, CDA Alloy 110
 - c. Weight: 3 oz, min
 - d. Fabrics:
 - 1) Polymer fabric; laminated back face to copper core
 - 2) Non-woven drainage fabric: Fabric laminated to front face copper core.
 - e. Recycled content: Copper is 90% recycled
 - f. Size: Manufacturer's standard width rolls.
- C. Stainless Steel Sheet: at base of wall.
 1. ASTM A240 or ASTM A666, Type 304, dead soft, fully annealed.
 2. Finish: 2D (dull, cold rolled).
 3. Surface: Smooth, flat.
 4. Thickness:
 - a. Concealed (cavity closure): 0.012 inches minimum.
 - b. Exposed (receiver): 0.015 inches minimum.
- D. Fasteners: Same metal as flashing/sheet metal or compatible with flashing sheet metal. Where exposed, match finish of exposed heads with material being fastened.
- E. Elastomeric Sealant: ASTM C920, elastomeric medium modulus neutral cure silicone sealant to seal joints in sheet metal flashing and trim and remain watertight.

1. Dow Corning 795 Building Sealant, or approved substitute.
- F. Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of flashing sheet.
- G. Reglets: Metal or plastic units, compatible with flashing indicated, non-corrosive.
- H. Metal accessories: Provide sheet metal clips, straps, anchoring devices and all accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive.
- I. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates, with bituminous coating or other permanent separation.

2.2 METAL FINISHES

- A. General: Apply coatings either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capabilities. Protect coating either by application of strippable film or by packing plastic film or other suitable material between panels in a manner to properly protect the finish. Furnish air-drying spray finish in matching color for touch-up.
- B. Fluoropolymer Coating: Manufacturer's standard two-coat, thermocured, full-strength 70 percent "Kynar 500" coating consisting of a primer and a minimum 0.75-mil dry film thickness with a total dry film thickness of 0.9 mil.
- C. Durability: Provide coating that has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish; without chalking in excess of No. 8 in accordance with ASTM D659; and without fading in excess of 5 NBS units.

2.3 ACCESSORIES

- A. Mastic/sealant: Product standard of quality by manufacturer's recommendation.
 1. Characteristics:
 - a. Type: One part 100% solids, solvent-free formulated silyl-terminated polyether (STPE), ASTM C920-11, Type S, Grade NS, Class 50.
- B. Outside corner and inside corner material; manufacturer's standard available units using:
 1. Copper: 22 ga.
 2. Stainless steel: 26 ga.
- C. End dam: Product may be folded in line with the flashing material or utilize preformed end dams by manufacturer using:
 1. Copper: 22 ga.
 2. Stainless steel: 26 ga.
- D. Splice material: Product standard of quality following manufacturer's recommendation. Manufacturer's standard self-adhered metal material; material matching system material or use 6" lap piece and polyether sealant as a splice utilizing same materials.

- E. Termination bar: Product standard of quality following manufacturer's recommendation. Manufacturer's standard 1" composite material bar or a 1" 26 gauge stainless steel termination bar with sealant lip.
- F. Weep vent protection: Product standard of quality following manufacturer's recommendation. Geotextile drainage fabric at least 12" in height.
- G. Repair and other materials/accessories: Manufacturer's standard.
- H. Fasteners: Domestic manufactured fastener types and sizes recommended by flashing manufacturer for intended use.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.
 - 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive sheet metal work.
 - 2. Verify dimensions.
 - 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual". Anchor units as required to be secure and permanently watertight/weathertight.
- B. Provide for thermal expansion of all exposed sheet metal and flashing work exceeding 15 feet running length.
- C. Provide a concealed interlocking splice plate minimum 6 inch long and full splice depth of flashing at all joints. Bed exposed flashing in DOW 795 medium modulus silicone at each side of plate.
- D. Locate joints at least 2 feet from corners and intersections.
- E. Conceal fasteners and expansion provisions wherever possible. Fold back edges on concealed side of exposed edges to form a hem. If fasteners cannot be concealed they must match the color of the sheet metal.
- F. Insert flashing into reglet as shown. Anchor by mechanical means, including driven wedges of lead or other compatible metal, spaced 24 inches on center, maximum. Seal joint with sealant as indicated.

3.3 CLEANING

- A. Clean exposed surfaces according to manufacturer's written instructions.

END OF SECTION 07 62 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes joint sealants as scheduled below.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 - 2. When joint substrates are wet.

3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include the following:
 1. Dow Corning Corporation.
 2. Pecora Corporation.
 3. Tremco Incorporated

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Extreme movement sealants (+100% or -50% movement capability)
 1. Vertical/horizontal joint such as expansion joints; use reference # S-6.
- C. Significant movement sealants (+50% or -50% movement capability)
 1. Panel Joints, Coping and Flashing, Door, Storefront, Curtain Wall perimeters, and Masonry Joints; use reference S-7.
- D. Minimal movement sealants (+25% or -25% movement capability)
 1. Pavement and Sidewalk Joints; use reference S-1, S-2, and S-5.
- E. Interior Sealants and Caulking
 1. General; use reference #C-1.
 2. Special: Toilet rooms; use reference #S-8.

2.3 REFERENCE NUMBERS

| REF # | ASTM SPEC | PRODUCT DESCRIPTION (minimum requirements) |
|-------------|---|--|
| S = Sealant | | |
| S-1 | C-920 Type M Class 25 Grade NS | Multi component, non-sag polyurethane Shore A hardness of 20-40 Joint Movement range of $\pm 25\%$ |
| S-2 | C-920 Type M Class 25 Grade P | Multi component, self-leveling polyurethane Shore A hardness of 25-40 Joint Movement range of $\pm 25\%$ |
| S-3 | C-920 Type S Class 50 Grade NS | Not Used |
| S-4 | C-920 Type S Class 25 Grade NS | Not Used |
| S-5 | C-920 Type S Class 25 Grade P | One component, self-leveling polyurethane Shore A hardness of 15-45 Joint Movement range of $\pm 25\%$ |
| S-6 | C-920 Type S Class 100/50 Grade NS | Low modulus one component, non-sag neutral cure, silicone sealant Shore A hardness of 15-20 Joint Movement range of +100% to -50% |
| S-7 | C-920 Type S Class 50 Grade NS | One component, neutral cure, non-sag, silicone sealant Shore A hardness of 25-30 Joint Movement range of $\pm 50\%$ |
| S-8 | C-920 Type S Class 25 Grade NS | One component, non-sag, mildew resistant silicone sealant Shore A hardness of 25-30 |
| C = Caulk | | |
| C-1 | C834 | One component acrylic latex caulking Minimum 75% recovery per ASTM C736 Maximum joint movement of $\pm 7.5\%$ |

2.4 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone

testing according to ASTM C1248 and have not stained porous joint substrates indicated for Project.

- C. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

2.5 LATEX JOINT SEALANTS

- A. Latex Sealant: Comply with ASTM C834, Type P, Grade NF.

2.6 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C834 and the following:
 1. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E90.

2.7 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), O (open-cell material), B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.8 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include but are not limited to the following:
 - a. Metal.
 - b. Glass.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Provide concave joint configuration unless otherwise indicated.

3.4 CLEANING

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

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at

time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 00