

PROJECT MANUAL

SA&E PROJECT NUMBER: 01-920-038
BID PACKAGE: BP#1
ISSUED FOR CONSTRUCTION: APRIL 10, 2024

REROOF TO:
**CHATTANOOGA VALLEY
ELEMENTARY SCHOOL**
3240 CHATTANOOGA VALLEY RD, FLINTSTONE, GA 30725



WALKER COUNTY SCHOOLS
201 S. DUKES ST, LAFAYETTE, GA 30728

FACILITY CODE NUMBER: 746-4050

FUNDING: FY2024 / LOCAL



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1. 00 03 00 - ADVERTISEMENT/INVITATION FOR BIDS
2. 00 30 00 - BID FORMS
3. 01 29 01 - STATUTORY AFFIDAVIT
4. 01 29 02 - CONTRACTOR'S WARRANTIES
5. 01 29 03 - ROOFING GUARANTEE
6. 01 77 00 - CLOSEOUT PROCEDURES

WARNING: Contractors, subcontractors, vendors and suppliers are advised that the Contract Documents consist of Drawings, Specifications, Addenda, Post-Bid Addenda and Change Orders that have been printed, bound and numbered by the Architect. Any documents reproduced by parties other than the Architect, whether hard copy or electronic format, shall not be considered part of the Contract Documents and do not supersede the provisions of the Contract Documents. Contractors, subcontractors, vendors and suppliers are solely responsible for verifying that information used for bidding, development of shop drawings and construction of the facility are identical to the Architect's Contract Documents.

HOUSE BILL 1079 REQUIRES THAT NO GOVERNMENTAL ENTITY SHALL ISSUE OR CAUSE TO BE ISSUED ANY ADDENDA MODIFYING PLANS AND SPECIFICATIONS WITHIN A PERIOD OF 72 HOURS PRIOR TO THE ADVERTISED TIME FOR THE OPENING OF BIDS, EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS. THEREFORE, SOUTHERN A & E REQUESTS THAT ALL QUESTIONS REQUIRING CLARIFICATION BY ADDENDUM BE SUBMITTED NO LESS THAN **96** HOURS PRIOR TO THE ADVERTISED TIME FOR THE OPENING OF BIDS.

Table of Contents

SECTION

NUMBER

TITLE

00 00 30 Table of Contents

SERIES 0- BIDDING REQUIREMENTS AND CONTRACT FORMS

00 03 00 WCSS Advertisement for Bids

00 10 00 WCSS Instructions to Bidders

00 30 00 WCSS Bid Form

00 40 00 WCSS Immigration and Security Form revised (2015)

00 70 00 WCSS Standard Form of Fixed Price Contract (12.2009.GKM)

Payment Bond Contractor (12.2009.GKM) MARCH 2, 20212

Performance Bond and Contractor (12.2009.6gkm) MARCH 2, 2012

DIVISION 1- GENERAL REQUIREMENTS

01 10 00 Summary

01 21 00 Allowances

01 22 00 Unit Prices

01 25 00 Substitution Procedures

01 26 00 Contract Modification Procedures

01 29 00 Payment Procedures

01 29 01 Attachment A: Statutory Affidavit

01 29 02 Attachment B: Warranty by General Contractor

01 29 03 Attachment C: Roof Guarantee

01 31 00 Project Management and Coordination

01 32 00 Construction Progress Documentation

01 33 00 Submittal Procedures

01 40 00 Quality Requirements

01 50 00 Temporary Facilities and Controls

01 60 00 Product Requirements

01 73 00 Execution

01 77 00 Closeout Procedures

01 78 23 Operation and Maintenance Data

01 78 39 Project Record Documents

DIVISION 2- EXISTING CONDITIONS

02 41 19 Selective Structure Demolition

DIVISION 3- CONCRETE

NOT USED

DIVISION 4- MASONRY

NOT USED

DIVISION 5- METALS

NOT USED

DIVISION 6- WOOD, PLASTICS, AND COMPOSITES

06 10 53 Miscellaneous Rough Carpentry

DIVISION 7- THERMAL AND MOISTURE PROTECTION

07 54 23 Thermoplastic Polyolefin (TPO) Roofing

07 62 00 Sheet Metal Flashing and Trim

07 71 00 Roof Specialties

07 92 00 Joint Sealants

DIVISION 8- OPENINGS

NOT USED

DIVISION 9- FINISHES

NOT USED

DIVISION 10- SPECIALTIES

NOT USED

DIVISION 11- EQUIPMENT

NOT USED

DIVISION 12- FURNISHINGS

NOT USED

DIVISION 13- SPECIAL CONSTRUCTION

NOT USED

DIVISION 14- CONVEYING EQUIPMENT

NOT USED

DIVISION 21- FIRE SUPPRESSION

NOT USED

DIVISION 22- PLUMBING

NOT USED

DIVISION 23- HVAC

NOT USED

DIVISION 26- ELECTRICAL

NOT USED

DIVISION 27- COMMUNICATIONS

NOT USED

DIVISION 28- ELECTRONIC SAFETY & SECURITY

NOT USED

DIVISION 31- SITE CONSTRUCTION

NOT USED

DIVISION 32- EXTERIOR IMPROVEMENTS

NOT USED

DIVISION 33- UTILITIES

NOT USED

NOTICE AND ADVERTISEMENT FOR BID

WALKER COUNTY SCHOOL SYSTEMS

REROOF AND GUTTER REPLACEMENT FOR WALKER COUNTY CENTRAL OFFICE BUILDINGS

INVITATION TO BID

1.1 SOLICITATION

- A. Sealed bids from **General Contractors** will be received by **Walker County School Systems** in the **Facilities & Operations Department** at **298 Culberson Avenue, Lafayette, GA 30728** until **2:00 P.M. on XX May 2024** for construction of:

Reroof to Chattanooga Valley Elementary School 3240 Chattanooga Valley Road, Flintstone, GA 30725

- B. A mandatory pre-bid meeting will be held on **XX May 2024 at 11:00 A.M.** at the Walker County Board of Education, Facilities & Operations Department. Any person or entity that fails to attend the mandatory pre-bid meeting will not be permitted to submit a Bid for the Project and any Bid submitted by a person or entity that did not attend the mandatory pre-bid meeting will be returned unopened.
- C. Bids will be publicly opened and read aloud. No extension of bid will be made. Interested parties are invited to attend.

1.2 BID DOCUMENTS

- A. Bid documents may be examined at Southern A & E's office at 7951 Troon Circle, Austell, Georgia 30168 or by calling 770-819-7777 to request a password and link to Southern A & E's online plan service to view the documents. Upon further request, construction documents may be downloaded for printing or hard copies may be ordered through the online plan service. Only complete sets will be provided for downloading or as hardcopies.
- B. No deposits are required, and no refunds will be made.
- C. Bid documents will not be sent to plan rooms.

1.3 CONDITIONS

- A. No bid may be withdrawn for a period of sixty (60) days after bids are opened.
- B. Bid bond in the amount of five percent of the base bid is required and must be submitted with the bid. A bid bond is the **only acceptable form of bid security**. No personal checks, cashier's checks, certified checks or cash will be accepted in lieu of the bid bond.
- C. Performance and payment bonds in the amount of one hundred percent (100%) of the contract sum will be required prior to commencement of construction.
- D. All bonds shall be written by a surety licensed to conduct business in Georgia, listed on the Federal Register and acceptable to the Owner.
- E. Bidder shall attach a Contractor Affidavit and Agreement demonstrating compliance with O.C.G.A. 13-10-91, Georgia Security and Immigration Compliance Act. Bidder shall also comply with provisions of O.C.G.A. 50-36-1, Verification of Lawful Presence Within United States through the use of the Systematic Alien Verification for Entitlements (SAVE) program and shall provide verification of compliance with executed affidavits which are a part of the bid packet.
- F. Owner reserves the right to waive technicalities and irregularities and to reject any or all bids. The bids will be evaluated and awarded to what is most advantageous for the Walker County Board of Education.
- G. By submitting a bid, the Bidder agrees to sign the Owner's STANDARD FORM OF FIXED PRICE CONSTRUCTION CONTRACT, which is one of the bid documents.

1.4 SOLICITED BY:

**Chris Jones, Director of Facilities & Operations
Walker County Board of Education**

Date advertised: **XX May 2024 on Website & Georgia Procurement
XX May 2024 and XX May 2024 in the Walker County Messenger**

SECTION 00100

INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 DEFINITIONS:

- A. Bidding Documents: The Invitation to Bid, Instructions to Bidders, Bid Form, and Contract Documents as described in Article 1 of the Owner's STANDARD FORM OF FIXED PRICE CONSTRUCTION CONTRACT (the "Contract").
- B. Addenda: Written or graphic documents issued by Architect prior to execution of the Contract which modify or clarify Bidding Documents. Addenda will become part of the Contract Documents when the Contract is executed.
- C. Bid: Complete and properly signed bid to perform the Work described by Bidding Documents for sum stipulated therein. In order to be complete, Bid shall be accompanied by additional data required to be submitted with Bid.
- D. Base Bid: Sum stated in Bid Form for which Bidder proposes to complete the Work described, without consideration for Work proposed to be added or deleted by Alternates.
- E. Alternates: Amount stated in Bid Form to be added to or deducted from Base Bid amount, brought about by a change in scope of the Work. Alternates are described in Alternates Section of specifications.
- F. Bidder: One who submits a Bid for prime contract with Owner for the Work described in the Bidding Documents.
- G. Sub-bidder: One who submits a sub-bid for a portion of the Work to a Bidder.
- H. Definitions established in the Contract.

1.2 BIDDING DOCUMENTS:

- A. Bidding Documents may be examined at the sources indicated in the Invitation to Bid. Documents may be obtained by Bidders or Sub-Bidders from the source indicated in the Invitation to Bid upon deposit of the stipulated sum.

B. Deposits for one set of Bidding Documents, less mailing cost, if any, will be refunded to Bidders submitting a bona fide Bid upon return of Documents in good condition within ten (10) days after the date of receipt of Bids. Deposit of successful Bidder will not be returned. Cost of reproduction of Bidding Documents and mailing costs will not be returned to Bidders who do not submit a bona fide Bid.

C. Refunds for all other Bidding Documents to Sub-bidders and additional sets to Bidders will be made less actual costs of reproduction and mailing, upon return of Bidding Documents in good condition within the (10) days after date of receipt of Bids.

D. Bidding Documents are the property of the Owner and shall remain the property of the Owner. Bidding Documents are not to be used on other projects without expressed written consent of the Owner and, in the case of plans and specifications, the Architect. All Bidding Documents must be returned to the Architect's office within the period previously stated.

E. Costs of replacement of missing or damaged documents will be deducted from deposit refund.

F. Complete sets of Bidding Documents shall be used in preparing Bids. Owner and Architect assume no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

G. Owner and Architect, in making copies of Bidding Documents available on above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for other use.

1.3 INTERPRETATIONS OF BIDDING DOCUMENTS:

A. Bidders shall promptly notify Architect of ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents or of the site and local conditions.

B. Bidders requiring clarification or interpretation of Bidding Documents shall make a written request to Architect, and be received by the Architect at least ten (10) days prior to date for receipt of Bids.

C. Interpretations, corrections, or changes to the Bidding Documents will be made by Addendum. Interpretations, corrections, or change of Bidding Documents made in any other manner will not be binding and Bidders shall not rely upon such interpretations, corrections, or changes.

1.4 PRIOR APPROVALS:

A. If it is desired to use products different from those indicated in the Contract Documents, the party requesting the approval shall make written application as described herein. The burden of proving equality of proposed product rests on the party making the request for approval.

1. Requests for approval shall reach the Architect not less than ten (10) days prior to the date set for opening of Bids. Requests received by Architect after this date will not be considered. Facsimiles requesting prior approvals will not be accepted at any time.

2. Requests for approval shall be accompanied by such technical data as the party making the request desires to submit. Architect will consider reports from independent testing laboratories, verified experience records from previous users, and other printed or written information valid in the appropriate circumstances.

3. Requests for approval shall indicate in what respects proposed materials or products differ from those specified.

4. Requests for approval shall be accompanied by the manufacturer's printed recommendations describing the installation, use and care, as applicable, of proposed products.

5. Determination as to acceptability of proposed products will be made based only upon data submitted.

B. If a proposed product is approved by the Architect, an addendum will be issued to prospective bidders not less than seven (7) days prior to the date set for opening of bids. Unless requests are received and approved as described above, the successful bidder shall be responsible for furnishing materials and products in accord with the Contract Documents, except as provided in Products and Substitutions.

1.5 ADDENDA:

A. Addenda, when required, shall be issued to all recorded holders of Bidding Documents.

B. Addenda will not be issued later than seven (7) days prior to date of receipt of Bids, except an addendum, if necessary, postponing the date of receipt of Bids or withdrawing request for Bids or to include information which, in the opinion of the Owner or the Architect, will help to insure fairness and equality in the bidding procedure.

C. Each Bidder shall ascertain, prior to submitting Bid or Sub-bid, that all issued Addenda have been received. Bidders shall acknowledge their receipt on Proposal Form.

1.6 BIDDING PROCEDURES:

A. Form:

1. Bids shall be submitted in duplicate on forms provided by the Owner.
2. All blanks on the Bid Form shall be filled in by typewriter or manually in ink.
3. Dollar amounts shall be expressed in both words and figures and, in case of discrepancy between the two, written amount shall govern.
4. Interlineation, alteration, or erasure shall be initialed by signer of Bid.
5. Bidders may bid any combination of the separate and combined bid amounts.
6. All requested Alternates shall be bid.
7. Each copy of Bid shall include legal name of Bidder and a statement whether Bidder is a sole proprietor, a partnership, a corporation or other legal entity, and shall be signed by the person or persons legally authorized to bind Bidder to a contract. A Bid by a corporation shall further give state of incorporation and have a corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached certifying agent's authority to bind Bidder.

B. Bid Security:

1. Each Bid shall be accompanied by bid security in the Owner's required form and amount pledging that the Bidder will enter into a contract with the Owner on terms stated in its Bid and will furnish Performance and Payment Bonds as described hereinafter. Should the Bidder refuse to enter into such contract or fail to furnish bonds, if required, the amount of bid security shall be forfeited to the Owner not as a penalty, but as liquidated damages.
2. All bonds shall be written in on the form of the Owner, and Attorney-in-fact who executes bond on behalf of surety shall attach to bond a certified and current copy of its Power of Attorney. No other form of bid security will be acceptable. Bonds will not be accepted by facsimile.
3. Owner will have the right to retain bid security of Bidders until either:
 - a. Contract has been executed and bonds, if required, have been furnished or
 - b. Specified time has elapsed so that Bids may be withdrawn, or
 - c. All Bids have been rejected.

C. Submission of Bids:

1. Copies of Bid, Bid Security, and other documents required to be submitted with Bid shall be enclosed in a sealed opaque envelope. Envelope shall be addressed to party receiving Bids and shall be identified with project name, Bidder's name and address. If Bid is sent by mail, sealed envelope shall be enclosed in separate mailing envelope with notation "BID ENCLOSED" and project name on face thereof.
2. Bids shall be deposited at designated location prior to time and date for receipt of Bids. Bids received after time and date for receipt of Bids will be returned unopened.
3. Bidder shall assume full responsibility for timely delivery at location designated for receipt of Bids.
4. Oral, telephonic, or telegraphic Bids are invalid and will not receive consideration.

D. Modification or Withdrawal of Bid:

1. Except as provided in O.C.G.A. Sections 36-91-52 and 36-91-53, Bid may not be modified, withdrawn, or canceled by Bidder during stipulated time period following time and date designated for receipt of Bids and Bidder so agrees in submitting its Bid.

1.7

CONSIDERATION OF BIDS:

- A. Opening of Bids: Properly identified Bids received on time will be publicly opened and read aloud. An abstract of amounts of Base Bids and Alternates will be made available to Bidders.
- B. Rejection of Bids: Owner shall have the right to reject any and all Bids and, in particular, to reject a late Bid, a Bid not accompanied by the required Bid Bond or other data required by the Bidding Documents, or a Bid in any way incomplete or irregular. No other form of Bid Security, including Certified Checks, cash, etc. will be accepted in lieu of a Bid Bond.
- C. Acceptance of Bid:
1. Owner shall have the right to waive any technicalities and informalities.
 2. It is the intent of Owner to award the Contract to lowest responsive and responsible Bidder provided Bid has been submitted in accord with the requirements of Bidding Documents, is judged to be reasonable, and does not exceed funds available.
 3. The low responsive and responsible Bidder will be determined by considering the Base Bid plus or minus any

alternates. Deductive alternates or additive alternates will be taken in the respective order listed on the Bid Form unless one Bidder is low regardless of any combination of the alternates. Deductive alternates are for the purpose of ensuring the project can be contracted within the budget and additive alternates are for the purpose of considering possible enhancements to the project; as such, additive and deductive alternates will not be mixed in determining the low responsive and responsible Bidder.

END OF SECTION
01-920-038

SECTION 00300

BID FORM

Date: _____

Walker County School Systems
298 Culberson Avenue
LaFayette, Georgia 30278
ATTN: _____

Gentlemen:

Having carefully examined the Bidding Documents entitled Reroof to: Chattanooga Valley Elementary School and dated XX April 2024 and the premises and conditions affecting the work, the Undersigned proposes to furnish all services, labor, and material called for by them in accord with said documents, for the following sum:

_____ Dollars (\$ _____),
which sum is hereinafter called the "Base Bid".

The Undersigned agrees to commence actual Work on the site with an adequate force and equipment upon, but not before, receipt of Notice to Proceed and to achieve substantial completion of the Work under the Base Bid within _____ days thereafter.

In submitting this bid I further agree to the following unit prices for the work indicated:

1. Contractor is to price new 2x4 pressure treated wood nailers for the unit price of (\$ _____) per linear foot.
2. Contractor is to price new 2x6 pressure treated wood nailers for the unit price of (\$ _____) per linear foot.
3. Contractor is to price new 2x8 pressure treated wood nailers for the unit price of (\$ _____) per linear foot.

If the Undersigned is notified in writing by mail, telegraph, or delivery of the acceptance of this bid within sixty (60) days after the time set for the opening of bids, the Undersigned agrees to sign the Owner's STANDARD FORM OF FIXED PRICE CONSTRUCTION CONTRACT (the "Contract"), which is one of the Bidding Documents within ten days of such notification and at the same time to furnish and deliver to the Owner a Performance Bond and Payment Bond, in the form provided by the Owner, both in an amount equal to 100% of the Contract Price, and to perform the Work for the above stated compensation. The Surety on such Performance Bond and Payment Bond shall be (a) authorized to conduct business in the State of Georgia, (b) rated "A-IX" or better by A.M. Best Company, and (c) listed by the United States Department of the Treasury in its Listing of Approved Sureties (Department Circular 570) with an underwriting limitation equal to or greater than the Contract Price.

Attached hereto is a Bid Bond executed in accord with the Instructions to Bidders in the amount being not less than 5% of the Base Bid, made payable to the Owner, as obligee. The undersigned agrees that in case of failure on its part to execute the Contract and required Performance Bond and Payment Bond within ten days after being given written notice of the award of Contract, the Bid Bond accompanying this Bid is callable, otherwise, said Bid Bond shall be returned to the Undersigned upon completion of such obligations.

Addendum No. _____ is acknowledged to be the last addendum received in numerical sequence.

Respectfully submitted,

BY: _____

Title: _____

COMPANY: _____

ADDRESS: _____

WITNESS: _____

(CORPORATE SEAL)

END OF SECTION
01-920-038



IMMIGRATION AND SECURITY FORM
Contractors and Individuals Performing Services for
Walker County Board of Education

Any contractor who contracts with Walker County Board of Education for the performance of services in which the fee for services or labor exceeds \$2,499.99 must comply with the Federal work authorization program by signing and submitting an E-Verify Contractor Affidavit to Walker County Board of Education unless:

1. the contractor has no employees and no intent to hire employees in which case the contractor must present an approved state-issued identification card or driver's license. The driver's license or identification card is acceptable only if it is issued by a state that verifies lawful immigration status prior to issuance; or
2. the contract is with an individual licensed under Title 26, Title 43 or the State Bar of Georgia who is in good standing and is performing the service. Subcontractors are held to the same requirement. A copy of the Georgia License issued under Title 26, Title 43 or the State Bar of Georgia must be submitted with this form.

In order to insure compliance with the Immigration Reform and Control Act of 1986 (IRCA), Pub.L. 99-603 and the Georgia Security and Immigration Compliance Act O.C.G.A. § 13-10-90 et. seq., Contractor must certify compliance by initialing one of the sections below:

____ The Contractor has employees and has attached completed Contractor Affidavit (Form A). Subcontractor Affidavit (Form B) and Sub-subcontractor Affidavit (Form C) are also attached if applicable. W-9 Request for Taxpayer Identification Number is also attached.

____ The Contractor has no employees and has attached a copy of a valid driver's license or other approved state-issued identification card. W-9 Request for Taxpayer Identification Number is also attached.

____ The Contractor is an individual licensed under Title 26, Title 43 or the State Bar of Georgia who is in good standing and is performing the service. Copy of Georgia license is attached. W-9 Request for Taxpayer Identification Number is also attached.

Signature

Title

By signing above, you are certifying that the representations made herein are true and correct.

Firm Name: _____

Street/Mailing Address: _____

City, State, Zip Code: _____

Telephone Number: _____

Email Address: _____

Sworn to and subscribed before me

This ____ day of _____, 20____.

Notary Public

**STANDARD FORM OF
FIXED PRICE CONSTRUCTION CONTRACT
BETWEEN
THE WALKER COUNTY BOARD OF EDUCATION
AND**

[Contractor]

PROJECT: _____

Address: _____

ARCHITECT: _____

**Architect's
Address:** _____

TABLE OF CONTENTS

| | | |
|------------|---|----|
| ARTICLE 1 | DOCUMENTS INCORPORATED BY REFERENCE..... | 1 |
| ARTICLE 2 | REPRESENTATIONS OF THE CONTRACTOR..... | 1 |
| | 2.1 Generally..... | 1 |
| | 2.2 Qualification Information..... | 1 |
| ARTICLE 3 | CONTRACT CONSTRUCTION..... | 2 |
| | 3.1 Intent and Interpretation..... | 2 |
| | 3.2 Ownership..... | 4 |
| ARTICLE 4 | CONTRACTOR'S PERFORMANCE..... | 4 |
| | 4.1 Generally..... | 4 |
| ARTICLE 5 | TIME FOR CONTRACTOR'S PERFORMANCE..... | 4 |
| | 5.1 Time for Performance..... | 4 |
| | 5.2 Liquidated Damages for Delay..... | 5 |
| | 5.3 Substantial Completion..... | 5 |
| | 5.4 Time is of the Essence..... | 5 |
| ARTICLE 6 | FIXED PRICE AND CONTRACT PAYMENTS..... | 5 |
| | 6.1 Contract Price..... | 5 |
| | 6.2 Schedule of Values..... | 5 |
| | 6.3 Payment Procedures..... | 6 |
| | 6.4 Payments by Contractor..... | 6 |
| | 6.5 No Acceptance of Work..... | 7 |
| | 6.6 Refusal to Make Payment..... | 7 |
| | 6.7 Untimely Payments..... | 7 |
| | 6.8 Inspection and Payment at Substantial Completion..... | 8 |
| | 6.9 Final Completion..... | 8 |
| | 6.10 Final Inspection; Final Approval for Payment..... | 8 |
| | 6.11 Time for Final Completion; Liquidated Damages for Delay in Final Completion..... | 8 |
| | 6.12 Conditions Precedent to Final Payment..... | 8 |
| | 6.13 Final Payment..... | 9 |
| ARTICLE 7 | INFORMATION AND MATERIAL SUPPLIED BY THE OWNER..... | 9 |
| | 7.1 Generally..... | 9 |
| | 7.2 Easements..... | 9 |
| | 7.3 Contract Copies..... | 9 |
| ARTICLE 8 | CEASE AND DESIST ORDER..... | 9 |
| ARTICLE 9 | DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR..... | 10 |
| | 9.1 Generally..... | 10 |
| | 9.2 Warranty..... | 11 |
| | 9.3 Schedule for Completing Work..... | 11 |
| | 9.4 Storm Water Discharge Permits..... | 12 |
| ARTICLE 10 | INDEMNITY..... | 12 |
| ARTICLE 11 | THE PROJECT ARCHITECT..... | 12 |
| | 11.1 Architect..... | 12 |
| ARTICLE 12 | CLAIMS BY THE CONTRACTOR..... | 13 |
| | 12.1 Generally..... | 13 |
| | 12.2 Delays Generally..... | 15 |
| | 12.3 Mediation..... | 15 |

| | | |
|---------------|--|----|
| ARTICLE 13 | SUBCONTRACTORS | 16 |
| ARTICLE 14 | CHANGE ORDERS | 16 |
| | 14.1 Generally | 16 |
| ARTICLE 15 | DISCOVERING AND CORRECTING DEFECTIVE OR INCOMPLETE WORK | 18 |
| | 15.1 Work in Violation of Contract | 18 |
| | 15.2 Work in Conformity with Contract | 18 |
| | 15.3 Defective or Nonconforming Work | 18 |
| | 15.4 Duty to Correct Defective or Nonconforming Work..... | 18 |
| | 15.5 Owner's Option | 19 |
| ARTICLE 16 | TERMINATION BY THE CONTRACTOR..... | 19 |
| ARTICLE 17 | OWNER'S RIGHT TO SUSPEND CONTRACTOR'S PERFORMANCE..... | 19 |
| | 17.1 Suspension | 19 |
| | 17.2 Compensation..... | 19 |
| ARTICLE 18 | TERMINATION BY THE OWNER | 20 |
| | 18.1 Termination for Convenience..... | 20 |
| | 18.2 Termination for Cause | 20 |
| | 18.3 Termination Not Subject to Article 12 | 21 |
| ARTICLE 19 | INSURANCE | 20 |
| ARTICLE 20 | SURETY BONDS..... | 21 |
| ARTICLE 21 | PROJECT RECORDS | 21 |
| ARTICLE 22 | APPLICABLE LAW | 22 |
| ARTICLE 23 | SUCCESSORS AND ASSIGNS | 22 |
| EXHIBIT A | LIST OF PLANS AND SPECIFICATIONS FOR THE PROJECT | |
| EXHIBIT B | LIQUIDATED DAMAGES | |
| EXHIBIT C | MINIMUM REQUIREMENTS FOR CONTRACTOR'S SCHEDULE OF CONSTRUCTION | |
| EXHIBIT D | REQUIRED INSURANCE | |
| EXHIBIT D - 1 | ENDORSEMENT TO BUILDER'S RISK | |
| EXHIBIT E | IMMIGRATION AND SECURITY FORM | |

This FIXED PRICE CONSTRUCTION CONTRACT (the "Contract") is made and entered into by and between THE WALKER COUNTY BOARD OF EDUCATION (the "Owner") and _____ (the "Contractor"). This Contract is executed under seal, and shall be effective on the date executed by the last party to execute it.

This Contract is for the construction of a project identified as _____ (the "Project").

NOW, THEREFORE, in consideration of the mutual promises, covenants and agreements stated herein, and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows:

ARTICLE 1

DOCUMENTS INCORPORATED BY REFERENCE

This Contract includes this instrument, all exhibits hereto, the plans and specifications for the Project identified thereon as such, the Contractor's Bid or Proposal (as applicable), Supplemental Conditions, if any, Special Conditions, if any, and all Addenda issued prior to execution of the Contract, if any, plus the following (if any):

all of which are hereby incorporated herein by reference and made a part hereof. Attached hereto as Exhibit "A" is a list of the plans and specifications for the Project. Change Orders issued hereafter, and any other amendments executed by the Owner and the Contractor, shall become and be a part of this Contract. Documents not included or expressly contemplated in this Article 1 do not, and shall not, form any part of this Contract. The Contract, of which this instrument is a part, may sometimes be referred to as the "Contract Documents."

ARTICLE 2

REPRESENTATIONS OF THE CONTRACTOR

2.1 **Generally.** In order to induce the Owner to execute this Contract and recognizing that the Owner is relying thereon, and without limiting or restricting any other representation or warranty set forth elsewhere or implied by law, the Contractor, by executing this Contract, makes the following express representations and warranties to the Owner:

2.1.1 The Contractor is fully qualified to act as the contractor for the Project and has, and shall maintain, any and all licenses, permits or other authorizations necessary to act as the contractor for, and to construct, the Project.

2.1.2 The Contractor has visited, inspected and become familiar with the Project site and the local conditions under which the Project is to be constructed and operated.

2.1.3 The Contractor has received, reviewed and carefully examined all of the documents which make up this Contract, including, but not limited to, the plans and specifications, and believes them in all respects to be complete, accurate, adequate, consistent, coordinated and sufficient for construction.

2.2 **Qualification Information.** The Contractor represents, warrants and affirms that only truthful, complete and correct information has been provided to the Owner with the Contractor's Bid or Proposal (as applicable), and in any other communication from the Contractor regarding the Contractor's

qualifications or responsibility to perform the obligations of the Contractor under this Contract (all such information being referred to herein as "Qualification Information"). The Contractor further represents, warrants and affirms that in the event that any Qualification Information changed in any material way after it was communicated from the Contractor and before this Contract is signed by all parties, the Contractor has immediately notified the Owner, in writing, of such change or changes and Contractor agrees that Owner may take such action thereon as Owner deems appropriate. The Contractor acknowledges and agrees that the Owner has relied, and will continue to rely, on the truthfulness, completeness and correctness of the Qualification Information. The Contractor acknowledges and agrees that all Qualification Information is material and important to the Owner's evaluation of the Contractor's qualifications and responsibility to undertake the Contractor's obligations under this Contract. Contractor acknowledges and agrees that if the Contractor knowingly provided any false, incorrect, misleading or incomplete information to the Owner in any Qualification Information, or failed to advise the Owner in writing of any material change in such information as set forth in this Paragraph, this Contract shall be deemed to be materially breached by Contractor and subject to immediate termination for cause or rescission for cause by the Owner, at the sole option of the Owner. The Owner also shall have and retain any and all other rights and remedies provided by law, in contract or otherwise.

ARTICLE 3

CONTRACT CONSTRUCTION

3.1 **Intent and Interpretation.** With respect to the intent and interpretation of this Contract, the Owner and the Contractor agree as follows:

3.1.1 This Contract, together with the Contractor's and Surety's performance and payment bonds for the Project, constitute the entire and exclusive agreements between the parties with reference to the Project, and said Contract supersedes any and all prior discussions, communications, representations, understandings, negotiations, or agreements. This Contract also supersedes any bid documents, but only to the extent that it is inconsistent therewith.

3.1.2 Anything that may be required, implied or inferred by the documents which make up this Contract, or any one or more of them, shall be provided by the Contractor for the Contract Price.

3.1.3 Nothing contained in this Contract shall create, nor be interpreted to create, privity or any other relationship whatsoever between the Owner and any person or entity except the Contractor.

3.1.4 The specification herein of any act, failure, refusal, omission, event, occurrence or condition as constituting a material breach of this Contract shall not imply that any other, non-specified act, failure, refusal, omission, event, occurrence or condition shall be deemed not to constitute a material breach of this Contract.

3.1.5 The Contractor shall have a continuing duty to read, examine, review, compare and contrast each of the documents which make up this Contract, shop drawings, and other submittals. Each of the documents is complementary and shall be interpreted so that what is called for by one shall be as binding as if called for by all. Should the Contractor observe any conflicts, ambiguity, errors or omissions within the documents, he shall, by written notice, bring them to the Owner's and Architect's attention for decision and revision as soon as possible after originally observed and before proceeding with the affected Work. In the event of duplication or conflicts between the documents after the Contract has been executed, the most expensive method of work, materials and equipment shall be construed as the requirement, with a credit for all costs saved accruing to the Owner in the event the least expensive method of work is directed. The express or implied approval by the Owner or the Architect of any shop drawings or other submittals shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with this Contract. The Owner has requested the Architect to only prepare documents for the Project, including the plans and specifications for the Project, which are accurate, adequate, consistent, coordinated and sufficient for construction.

However, the Owner makes no representation or warranty of any nature whatsoever to the Contractor concerning such documents. The Contractor again hereby acknowledges and represents that it has received, reviewed and carefully examined such documents, believes them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction, and that the Contractor has not, does not, and will not rely upon any representations or warranties by the Owner concerning such documents, as no such representations or warranties have been or are hereby made.

3.1.6 Plans are not intended to be scaled or to act as shop drawings.

3.1.7 In the event of any conflict, discrepancy, or inconsistency among any of the documents which make up this Contract, interpretation will be based on the following priority:

3.1.7.1 First, Addenda (if any), with those of later date having precedence over those of earlier date;

3.1.7.2 second, this Contract;

3.1.7.3 third, Supplemental or Special Conditions (if any);

3.1.7.4 fourth, the Specifications; and,

3.1.7.5 fifth, the Plans, with the following priority:

(a) As between figures given on plans and scaled measurements, the figures shall govern;

(b) As between large scale plans and small scale plans, the large scale plans shall govern.

3.1.8 Whenever an item is specified or shown on the plans by detail or reference, it shall be considered typical for other items which are obviously intended to be the same even though not so designated or specifically named but do serve the same function in the building.

3.1.9 Any material specified by reference to the number, symbol, or title of a specific standard such as a Commercial Standard, a Federal Specification, a trade association standard, or other similar standard, shall comply with the requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date indicated on the specifications, except as limited, or modified in such references. The standards referred to, except as modified in the Contract, shall have full force and effect as though printed in the Contract. The Contractor shall make itself aware of the contents of such standards and shall furnish the field office with one (1) full set of each.

3.1.10 If Owner elects to accept any items proposed by the Contractor as a substitution, the Contractor shall assume full responsibility for the proper performance of any substitution to the criteria set forth in the Contract and assume the costs of any changes in the Work which may be due to such substitution.

3.1.11 When a word, term, or phrase is used in this Contract, it shall be interpreted or construed first, as defined herein; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage.

3.1.12 The words "include", "includes", or "including", as used in this Contract, shall be deemed to be followed by the phrase, "without limitation".

3.1.13 Wherever the terms “necessary”, “suitable”, “as directed”, “when directed”, “satisfactory”, “good and sufficient”, “approved”, or other general qualifying terms are used on the plans, they are deemed to be followed by the words “in the opinion of the Architect”, or “by the Architect”, as the case may be.

3.1.14 Unless otherwise stated, the terms “approval”, “approved”, “approved equal”, “or equal”, or “other approved”, are deemed to be followed by the words “in the opinion of the Architect”, or “by the Architect”, as the case may be.

3.1.15 If the Owner’s design professional for the Project is an engineer rather than an architect, then the term “Architect” as used throughout this Contract shall mean “Engineer”.

3.1.16 Unless otherwise stated, the term “day” means “calendar day” and the term “days” means “calendar days”.

3.1.17 “Work” means any and all labor, supervision, work, supplies, fixtures, appliances, furnishings, vehicles, equipment, services, facilities, tools, materials, computers, transportation, storage, power, fuel, heat, light, cooling, utilities, insurance, bonds, items, documents and things required by the Contract Documents to be performed, obtained, furnished, provided, or supplied by Contractor, including without limitation all construction, testing, and permitting required to render the Project, and every component thereof, operational and usable for its intended purposes.

3.2 Ownership. The documents which make up this Contract, and each of them, as well as any other documents furnished by the Owner, shall remain the property of the Owner. The Contractor shall have the right to keep one (1) copy of the Contract upon completion of the Project; provided, however, that in no event shall the Contractor use, or permit to be used, any portion or all of such Contract on other projects without the Owner’s prior written authorization.

ARTICLE 4

CONTRACTOR'S PERFORMANCE

4.1 Generally. The Contractor shall perform all of the Work required, implied or reasonably inferable from this Contract including, but not limited to, the following:

4.1.1 Construction of the Project;

4.1.2 The furnishing of required surety bonds and insurance;

4.1.3 The provision, and prompt payment therefor, of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, fuel, heat, light, cooling, or other utilities, required for construction and all necessary building permits and other permits, licenses, fees and governmental inspections required for the construction of the Project; and,

4.1.4 The creation and submission to the Owner of detailed and comprehensive as-built drawings depicting all as-built construction. Said as-built drawings shall be submitted to the Owner upon Final Completion of the Project and receipt of same by the Owner shall be a condition precedent to final payment to the Contractor.

ARTICLE 5

TIME FOR CONTRACTOR'S PERFORMANCE

5.1 Time for Performance. The Contractor shall commence the performance of this Contract on the day the Contractor receives a written Notice to Proceed from the Architect or Owner, or such later date as may be set forth therein, and shall diligently continue its performance to and until Final

Completion of the Project. The Contractor shall accomplish Substantial Completion of the Project on or before _____. The time for achieving Substantial Completion may sometimes be referred to in the Contract Documents as the "Contract Time".

5.2 Liquidated Damages for Delay. The Contractor shall pay the Owner for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth herein for Substantial Completion the sum indicated at Exhibit "B" attached hereto and by reference made a part hereof. Any sums due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner. When the Owner reasonably believes that Substantial Completion will be inexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Substantial Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages.

5.3 Substantial Completion. The term "Substantial Completion", as used herein, shall mean that point at which, as certified in writing by the Architect, the Project is at a level of completion in strict compliance with this Contract such that the Owner can enjoy beneficial use or occupancy and can use or operate it in all respects, for its intended purpose. Partial use or occupancy of the Project shall not result in the Project being deemed substantially complete, and such partial use or occupancy shall not be evidence of Substantial Completion.

5.4 Time Is Of The Essence. All limitations of time set forth herein are material and are of the essence of this Contract.

ARTICLE 6

FIXED PRICE AND CONTRACT PAYMENTS

6.1 Contract Price. The Owner shall pay, and the Contractor shall accept, as full and complete payment for the Contractor's timely performance of its obligations hereunder the fixed price of _____ Dollars (\$_____). The price set forth in this Paragraph 6.1 shall constitute the Contract Price, which shall not be modified except by Change Order as provided in this Contract. The Contract Price includes the following Alternate(s), if any:

6.2 Schedule of Values. Within ten (10) calendar days of the effective date hereof, the Contractor shall prepare and present to the Owner and the Architect the Contractor's Schedule of Values apportioning the Contract Price among the different elements of the Project for purposes of periodic and final payment. The Contractor's Schedule of Values shall be presented in whatever format, with such detail, and backed up with whatever supporting information the Architect or the Owner requests. The Contractor shall not front-end load its Schedule of Values by imbalancing it or by increasing any element thereof in excess of the actual cost, and any violation of this provision by the Contractor shall constitute a material breach of this Contract. The Contractor's Schedule of Values will be utilized for the Contractor's Payment Requests but shall only be so utilized after it has been acknowledged in writing by the Architect and the Owner.

6.3 Payment Procedures. The Owner shall pay the Contract Price to the Contractor in accordance with the procedures set forth in this Article 6. On or before the 5th day of each month after commencement of performance, but no more frequently than once monthly, the Contractor may submit a Payment Request for the period ending the last day of the previous month. Said Payment Request shall be in such format and include whatever supporting information as may be required by the Architect, the Owner, or both. Therein, the Contractor may request payment for ninety percent (90%) of that part of the Contract Price allocable to Contract requirements properly provided, labor, materials and equipment properly incorporated in the Project, and materials or equipment necessary for the Project and properly stored at the Project site (or elsewhere if offsite storage is approved in writing by the Owner), less the total amount of previous payments received from the Owner. Any payment on account of stored materials or equipment will be subject to the Contractor providing written proof that the Owner has title to such materials or equipment and that they are fully insured against loss or damage. Moreover, any sums approved for stored materials shall be at actual cost and shall not include markup by subcontractor or Contractor. Actual cost means costs charged by the manufacturer or the distributor for the manufacturer and the Payment Request shall include copies of invoices from the manufacturer or the distributor.

When fifty percent (50%) of the Contract Price, as it may be adjusted, is due and the manner of completion of the Work and its progress are reasonably satisfactory to the Architect, the Owner shall withhold no more retainage. If, after discontinuing the retention, the Architect determines that the Work is unsatisfactory or has fallen behind schedule, retention shall be resumed at the previous level.

Each Payment Request shall be signed by the Contractor and shall constitute the Contractor's representation that the quantity of Work has reached the level for which payment is requested, that the Work has been properly installed or performed in strict compliance with this Contract, and that the Contractor knows of no reason why payment should not be made as requested. Each Payment Request shall be accompanied by 8" x 10" photographs of good quality depicting the then-current status of the Project and including such views, including without limitation aerial views, as the Architect or the Owner may reasonably require.

Thereafter, the Architect shall review the Payment Request and may also review the Work at the Project site or elsewhere to determine whether the quantity and quality of the Work is as represented in the Payment Request and is as required by this Contract. The Architect shall approve in writing the amount which, in the opinion of the Architect, is properly owing to the Contractor. The Owner, after the approval of the Georgia Department of Education if so required, shall make payment to the Contractor within thirty (30) days following the Architect's written approval of each Payment Request. The amount of each such payment shall be the amount approved for payment by the Architect less such amounts, if any, otherwise owing by the Contractor to the Owner or which the Owner shall have the right to withhold as authorized by this Contract. The Architect's approval of the Contractor's Payment Requests shall not preclude the Owner from the exercise of any of its rights as set forth in Paragraph 6.6 hereinbelow. The submission by the Contractor of a Payment Request also constitutes an affirmative representation and warranty that all Work for which the Owner has previously paid is free and clear of any lien, claim, or other encumbrance of any person or entity whatsoever. As a condition precedent to payment, the Contractor shall, if required by the Owner, also furnish to the Owner properly executed waivers of claim or lien, in a form acceptable to the Owner, from Contractor and from all subcontractors, materialmen, suppliers or others having claim or lien rights, wherein Contractor and said subcontractors, materialmen, suppliers or others having claim or lien rights shall acknowledge receipt of all sums due pursuant to all prior Payment Requests and waive and relinquish any liens, lien rights or other claims relating to the Project site. Furthermore, the Contractor warrants and represents that, upon payment of the Payment Request submitted, title to all Work included in such payment shall be vested in the Owner.

6.4 Payments by Contractor. When payment is received from the Owner, the Contractor shall immediately pay all subcontractors, materialmen, laborers and suppliers the amounts they are due for the Work covered by such payment. In the event the Owner becomes informed that the Contractor has not paid a subcontractor, materialman, laborer, or supplier as provided herein, the Owner shall have the right, but not the duty, to issue future checks and payment to the Contractor of amounts otherwise due hereunder naming the Contractor and any such subcontractor, materialman, laborer, or supplier as

joint payees. Such joint check procedure, if employed by the Owner, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the Owner to repeat the procedure in the future.

6.5 No Acceptance of Work. Neither payment to the Contractor, utilization of the Project for any purpose by the Owner, nor any other act or omission by the Owner shall be interpreted or construed as an acceptance of any Work of the Contractor not strictly in compliance with this Contract.

6.6 Refusal to Make Payment. The Owner shall have the right to refuse to make payment and, if necessary, may demand the return of a portion or all of the amount previously paid to the Contractor due to any one, or combination of, the following:

6.6.1 The quality of a portion, or all, of the Contractor's Work not being in accordance with the requirements of this Contract;

6.6.2 The quantity of the Contractor's Work not being as represented in the Contractor's Payment Request, or otherwise;

6.6.3 The Contractor's rate of progress being such that, in the opinion of the Owner or the Architect, or both, Substantial Completion or Final Completion, or both, may be inexcusably delayed;

6.6.4 Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;

6.6.5 The Contractor's failure to use Contract funds, previously paid the Contractor by the Owner, to pay Contractor's Project-related obligations including, but not limited to, subcontractors, laborers and material and equipment suppliers;

6.6.6 Claims made, or likely to be made, against the Owner or its property;

6.6.7 Loss or damage caused by the Contractor;

6.6.8 The Contractor's failure or refusal to perform any of its obligations relating to safety, including without limitation the safety related obligations set forth in the Specifications Division 1 – General Requirements; or,

6.6.9 The Contractor's failure or refusal to perform any of its obligations to the Owner.

In the event that the Owner makes written demand upon the Contractor for amounts previously paid by the Owner as contemplated in this Paragraph 6.6 the Contractor shall promptly comply with such demand.

6.7 Untimely Payments. If within thirty (30) days from the date payment to the Contractor is due, the Owner, without cause or basis hereunder, fails to pay the Contractor any amounts then due and payable to the Contractor, the Contractor shall have the right to cease Work until receipt of proper payment after first providing ten (10) days written notice of its intent to cease Work to the Owner.

6.7.1 Payments due from the Owner to the Contractor under the terms of this Contract which remain unpaid for thirty (30) days after the date when due will thereafter accrue interest at the rate of six percent (6%) per annum until payment of such amount as is due has been made in full provided that notice has been given as set forth in O.C.G.A. § 13-11-7. Acceptance of progress payments or final payment shall release all claims for interest on said payments. To the fullest extent allowed by law, the Contract Documents shall supersede all provisions of the Georgia Prompt Pay Act, O.C.G.A. § 13-11-1, *et seq.*

6.8 Inspection and Payment at Substantial Completion. When Substantial Completion has been achieved, the Contractor shall notify the Owner and the Architect in writing and shall furnish to the Architect a listing of those matters yet to be finished. The Architect will thereupon conduct an inspection to confirm that the Work is in fact substantially complete. Upon its confirmation that the Contractor's Work is substantially complete, the Architect will so certify to the Owner and Contractor in writing and will therein set forth the date of Substantial Completion. If the Architect, through its inspection, fails to find that the Contractor's Work is substantially complete, and is required to repeat all, or any portion, of its Substantial Completion inspection, the Contractor shall bear the cost of such repeat inspection(s) which cost may be deducted by the Owner from any payment then or thereafter due to the Contractor. Guarantees and equipment warranties required by this Contract shall commence on the date of Substantial Completion. Subject to the condition precedent set forth in the immediately succeeding sentence, upon Substantial Completion, the Owner shall pay the Contractor an amount sufficient to increase total payments to the Contractor to one hundred percent (100%) of the Contract Price less any amounts attributable to liquidated damages, together with two hundred percent (200%) of the reasonable costs as determined by the Owner for completing all incomplete Work, correcting and bringing into conformance all defective and nonconforming Work, and handling any outstanding or threatened claims. Prior to being entitled to receive the payment described in the immediately preceding sentence, and as a condition precedent thereto, Contractor shall furnish Owner, in form and manner acceptable to Owner, consent(s) of surety to release retainage, together with an original current power of attorney with current certificate attached thereto.

6.9 Final Completion. "Final Completion" means the completion of all Work required by, and in strict compliance with, the Contract, including start-up, testing, obtaining regulatory approvals from all applicable authorities, and all preparations necessary to operate the Project.

6.10 Final Inspection; Final Approval for Payment. When the Project is finally complete and the Contractor is ready for a final inspection, it shall notify the Owner and the Architect thereof in writing. Thereupon, the Architect will perform a final inspection of the Project. If the Architect confirms that the Project is complete in full accordance with this Contract and that the Contractor has performed all of its obligations to the Owner hereunder, the Architect will furnish a final Approval for Payment to the Owner certifying to the Owner that the Project is complete and the Contractor is entitled to the remainder of the unpaid Contract Price, less any amount withheld pursuant to this Contract. If the Architect is unable to issue its final Approval for Payment and is required to repeat its final inspection of the Project, the Contractor shall bear the cost of such repeat inspection(s), which costs may be deducted by the Owner from the Contractor's final payment.

6.11 Time for Final Completion; Liquidated Damages for Delay in Final Completion. If the Contractor fails to achieve Final Completion within 30 days of the date of Substantial Completion, the Contractor shall pay the Owner one-tenth (1/10) of the sum indicated at Exhibit "B" per day for each and every calendar day of unexcused delay in achieving Final Completion beyond the date set forth herein for Final Completion of the Work. Any sums due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner. When the Owner reasonably believes that Final Completion will be inexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Final Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages.

6.12 Conditions Precedent to Final Payment. Prior to being entitled to receive final payment, and as a condition precedent thereto, the Contractor shall furnish the Owner, in the form and manner required by Owner, if any, with a copy to the Architect, all of the following:

6.12.1 An affidavit that all of the Contractor's obligations to subcontractors, laborers, equipment or material suppliers, or other third parties in connection with the Project, have been paid or otherwise satisfied;

6.12.2 If required by the Owner, separate releases of claims and liens and claim and lien waivers from Contractor and each subcontractor, lower tier subcontractor, laborer, supplier or other person or entity who has, or might have, a claim against the Owner or the Owner's property and an affidavit that all such releases and waivers have been provided;

6.12.3 Consent(s) of Surety to final payment, together with an original current power of attorney with current certificate attached thereto; and,

6.12.4 All product warranties, operating manuals, instruction manuals and other record documents, drawings and things customarily required of the Contractor, or expressly required herein, as a part of or prior to Project closeout.

6.13 Final Payment. The Owner shall, after the approval of the Georgia Department of Education if so required, and subject to its rights set forth in Paragraph 6.6 above, make final payment of all sums due the Contractor within ten (10) days of the Architect's execution of a final Approval for Payment. The making of final payment by the Owner shall constitute a full and final waiver of any and all claims by the Contractor except for claims (a) previously and timely made in writing by the Contractor pursuant to the requirements of Article 12 and (b) listed and identified on the Contractor's final Payment Request.

ARTICLE 7

INFORMATION AND MATERIAL SUPPLIED BY THE OWNER

7.1 Generally. The Owner shall furnish to the Contractor, prior to the execution of this Contract, any and all written and tangible material in its possession concerning conditions below ground at the site of the Project. Such written and tangible material is furnished to the Contractor only in order to make complete disclosure of such material as being in the possession of the Owner and for no other purpose. By furnishing such material, the Owner does not represent, warrant, or guarantee its accuracy either in whole, in part, implicitly or explicitly, or at all, and shall have no liability therefor. The Owner shall also furnish, if appropriate, the legal description of the Project site, and any required survey.

7.2 Easements. The Owner shall obtain all required easements and the like, but not the building permit and other permits or fees required of the Contractor by this Contract, or permits and fees customarily the responsibility of the Contractor.

7.3 Contract Copies. The Owner will provide the Contractor three (3) copies of the complete Contract Documents. The Contractor will be charged, and shall pay the Owner, actual cost of reproduction for each additional copy of the Contract Documents requested by the Contractor.

ARTICLE 8

CEASE AND DESIST ORDER

In the event the Contractor fails or refuses to perform the Work as required herein, the Owner may instruct the Contractor to cease and desist from performing further Work in whole or in part. Upon receipt of such instruction, the Contractor shall immediately cease and desist as instructed by the Owner and shall not proceed further until the cause for the Owner's instructions has been corrected, no longer exists, or the Owner instructs that the Work may resume. In the event the Owner issues such instructions to cease and desist, and in the further event that the Contractor fails and refuses within seven (7) days of receipt of same to provide adequate assurance to the Owner that the cause of such instructions will be eliminated or corrected, then the Owner shall have the right, but not the obligation, to carry out the Work with its own forces, or with the forces of another contractor, and the Contractor shall be fully responsible and liable for the costs of performing such Work by the Owner. In such case, an appropriate Change Order shall be issued deducting from the payment then or thereafter due the Contractor the cost of

correcting such deficiencies, including the cost of the Architect's additional services made necessary by such default, neglect or failure. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner. The rights set forth herein are in addition to, and without prejudice to, any other rights or remedies the Owner may have against the Contractor.

ARTICLE 9

DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR

9.1 Generally. In addition to any and all other duties, obligations and responsibilities of the Contractor set forth in this Contract, the Contractor shall have and perform the following duties, obligations and responsibilities to the Owner:

9.1.1 The Contractor is again reminded of its continuing duties set forth in Subparagraph 3.1.5 which are by reference hereby incorporated in this Subparagraph 9.1.1. The Contractor shall not perform Work without adequate plans and specifications, or, as appropriate, approved shop drawings, or other submittals. If the Contractor performs Work knowing or believing it involves an error, inconsistency or omission in the Contract without first providing written notice to the Architect and Owner, the Contractor shall be responsible for such Work and pay the cost of correcting same.

9.1.2 All Work shall strictly conform to the requirements of this Contract.

9.1.3 The Work shall be strictly supervised, the Contractor bearing full responsibility for any and all acts or omissions of those engaged in the Work on behalf of the Contractor.

9.1.4 The Contractor shall obtain and pay for all required permits, fees and licenses customarily obtained by the Contractor. The Contractor shall comply with all laws and legal requirements applicable to the Work.

9.1.5 The Contractor shall employ and maintain at the Project site only competent supervisory personnel. The superintendent must be satisfactory to the Owner. The superintendent shall represent the Contractor and communications given to the superintendent shall be as binding as if given to the Contractor. Key supervisory personnel assigned by the Contractor to this Project are as follows:

| NAME | FUNCTION |
|------|----------|
|------|----------|

| | |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

So long as the individuals named above remain actively employed or retained by the Contractor, they shall perform the functions indicated next to their names unless the Owner agrees to the contrary in writing. In the event one or more individuals not listed above subsequently assumes one or more of those functions listed above, the Contractor shall be bound by the provisions of this Subparagraph 9.1.5 as though such individuals had been listed above.

9.1.6 The Contractor shall keep an updated copy of this Contract at the site. Additionally, the Contractor shall keep a copy of approved shop drawings and other submittals. All of these items shall be available to the Owner and the Architect at all regular business hours. Upon Final Completion of the Work, all of these items shall be finally updated and provided to the Owner and shall become the property of the Owner.

9.1.7 Shop drawings and other submittals from the Contractor do not constitute a part of the Contract. The Contractor shall not do any Work requiring shop drawings or other submittals unless such shall have been approved in writing by the Architect. All Work requiring approved shop drawings or other submittals shall be done in strict compliance with such approved documents. However, approval by the Architect or the Owner shall not be evidence that Work installed pursuant thereto conforms with the requirements of this Contract. The Owner and the Architect shall have no duty to review partial submittals or incomplete submittals. The Contractor shall maintain a submittal log which shall include, at a minimum, the date of each submittal, the date of any resubmittal, the date of any approval or rejection, and the reason for any approval or rejection. The Contractor shall carefully review, inspect and examine any and all submittals before submission of same to the Owner or the Architect.

9.1.8 The Contractor shall maintain the Project site in a reasonably clean condition during performance of the Work. Upon Final Completion, the Contractor shall thoroughly clean the Project site of all debris, trash and excess materials or equipment.

9.1.9 At all times relevant to this Contract, the Contractor shall permit the Owner and the Architect to enter upon the Project site and to review or inspect the Work without formality or other procedure.

9.2 Warranty.

9.2.1 The Contractor hereby warrants that all labor furnished under this Contract shall be competent to perform the tasks undertaken, that the product of such labor shall yield only first-class results, that all materials and equipment provided shall be new and of high quality, that the completed Work will be complete, of high quality, without defects, and that all Work strictly complies with the requirements of this Contract. Any Work not strictly complying with the requirements of this Subparagraph shall constitute a breach of the Contractor's warranty.

9.2.2 The Contractor shall provide any and all specific or special warranties or guarantees of materials, equipment, items, systems and other things as required elsewhere in this Contract.

9.3 Schedule for Completing Work. The Contractor, within fifteen (15) days of commencing the Work, shall provide to the Owner and the Architect, and comply with, the Contractor's Schedule of Construction for timely completing the Work. Such schedule shall be a detailed critical path (CPM) schedule in a form acceptable to the Owner. The Contractor's Schedule of Construction shall be updated no less frequently than monthly (unless the parties otherwise agree in writing) and shall be updated to reflect conditions encountered from time to time and shall apply to the total Project. Each such revision shall be furnished to the Owner and the Architect. In addition to, and not in limitation of, any other requirements of this Contract, the Contractor shall comply with the requirements of Exhibit "C," Minimum Requirements for Contractor's Schedule of Construction, attached hereto and incorporated herein by reference. Strict compliance with the requirements of this Paragraph 9.3 shall be a condition precedent to payment to the Contractor, and failure by the Contractor to strictly comply with said requirements shall constitute a material breach of this Contract.

9.3.1 In the event the Contractor inexcusably fails to comply with the time limits established in the Contractor's Schedule of Construction with respect to any task on the critical path of the Project, then, in addition to any other rights and remedies of the Owner under the Contract, the Contractor shall, within seven days after receipt of written demand of the Owner, commence working not less than a twelve-hour day and not less than six days a week until such time as Contractor shall have

overcome the delinquency and brought the amount of critical path Work in place into compliance with the Contractor's Schedule of Construction, all at no additional cost to the Owner. Nothing herein shall relieve the Contractor from liability for failure to timely progress the Work or any other breach of the Contract Documents.

9.4 Storm Water Discharge Permits. Unless otherwise directed in writing by the Owner, the provisions of this Paragraph 9.4 shall apply and the Contractor shall have and perform the duties, obligations and responsibilities of the Contractor set forth herein. The Owner has contracted with the Architect to: (i) prepare the Erosion, Sedimentation and Pollution Control Plan in accordance with the State of Georgia Department of Natural Resources Environmental Protection Division storm water discharge permit (the "DNREPDSWD Permit"); (ii) perform the initial inspection of the installation of the control measures set forth in the Erosion, Sedimentation and Pollution Control Plan in accordance with the DNREPDSWD Permit; (iii) perform the weekly inspections and inspections after rain (or other precipitation) as are required by the DNREPDSWD Permit; and (iv) perform the duties, obligations and responsibilities of the "design professional" under the DNREPDSWD Permit. As used in the immediately preceding sentence, the term "design professional" shall have the meaning ascribed to it in the DNREPDSWD Permit. Excepting only the foregoing items (i) through (iv) performed by the Architect, the Contractor shall provide, satisfy or otherwise comply with all applicable requirements and conditions of the DNREPDSWD Permit, including, without limitation, all notices, fees, plan implementation, monitoring, sampling, inspections, reports, record keeping, submittals and any other requirements and conditions of the DNREPDSWD Permit. The Contractor's duties and obligations shall not be relieved by any duties of the Architect. The Contractor shall timely notify the Architect of any rain or other precipitation requiring the inspections referred to in item (iii) above so as to facilitate the Architect's timely performance of such inspections. The Contractor shall timely notify the Owner and Architect of any failure by the Architect to timely perform the inspections referred to in item (iii) above.

ARTICLE 10

INDEMNITY

The Contractor shall indemnify and hold the Owner harmless from any and all claims, liability, damages, loss, cost and expense of every type whatsoever including, without limitation, attorneys' fees and expenses, in connection with the Contractor's performance of this Contract, provided that such claim, liability, damage, loss, cost or expense is due to sickness, bodily injury, disease or death, or to loss or destruction of tangible property (other than the Work itself), including loss of use resulting therefrom, to the extent caused by the Contractor, or anyone for whose acts the Contractor is or may be responsible or liable, regardless of whether such liability, claim, damage, loss, cost or expense is caused in part by the Owner. The Contractor shall not indemnify or hold harmless the Owner against claims for damages, losses, or expenses, including attorneys' fees, arising out of sickness, bodily injury, disease or death, or to loss or destruction of tangible property caused by or resulting from the sole negligence of the Owner, or its officers, agents or employees; provided, however, the preceding limitation concerning the sole negligence of the Owner or its officers, agents or employees shall not limit or affect any obligation of the Contractor under workers' compensation or coverage or insurance specifically relating to workers' compensation, nor any requirement that one party to this Contract purchase a project specific insurance policy, including owner's or contractor's protective insurance, builder's risk insurance, installation coverage, project management protective liability insurance, an owner controlled insurance policy, or a contractor controlled insurance policy.

ARTICLE 11

THE PROJECT ARCHITECT

11.1 Architect. The architect for this Project is _____ (the "Architect"). In the event the Owner should find it necessary or convenient to replace the Architect, the Owner shall retain a replacement architect and the role of the replacement architect shall be the same as the role of the Architect. Unless otherwise directed by the Owner in writing, the Architect will perform

those duties and discharge those responsibilities allocated to the Architect in this Contract. The duties, obligations and responsibilities of the Architect shall include, but are not limited to, the following:

11.1.1 Unless otherwise directed by the Owner in writing, the Architect shall act as the Owner's agent from the effective date of this Contract until final payment has been made, to the extent expressly set forth in this Contract;

11.1.2 Unless otherwise directed by the Owner in writing, the Owner and the Contractor shall communicate with each other in the first instance through the Architect;

11.1.3 When requested by the Contractor in writing, the Architect shall render interpretations necessary for the proper execution or progress of the Work;

11.1.4 The Architect shall draft proposed Change Orders;

11.1.5 The Architect shall approve, or respond otherwise as necessary concerning shop drawings or other submittals received from the Contractor;

11.1.6 The Architect shall be authorized to refuse to accept Work which is defective or otherwise fails to comply with the requirements of this Contract. If the Architect deems it appropriate, the Architect shall be authorized to call for extra inspection or testing of the Work for compliance with requirements of this Contract;

11.1.7 The Architect shall review the Contractor's Payment Requests and shall approve in writing those amounts which, in the opinion of the Architect, are properly owing to the Contractor as provided in this Contract;

11.1.8 The Architect shall, upon written request from the Contractor, perform those inspections required in Article 6 hereinabove;

11.1.9 The Architect shall be authorized to require the Contractor to make changes which do not involve a change in the Contract Price or in the time for the Contractor's performance of this Contract consistent with the intent of this Contract; and,

11.1.10 The duties, obligations and responsibilities of the Contractor under this Contract shall in no manner whatsoever be changed, altered, discharged, released, or satisfied by any duty, obligation or responsibility of the Architect. The Contractor is not a third-party beneficiary of any contract by and between the Owner and the Architect. It is expressly acknowledged and agreed that the duties of the Contractor to the Owner are independent of, and are not diminished by, any duties of the Architect to the Owner.

ARTICLE 12

CLAIMS BY THE CONTRACTOR

12.1 **Generally.** Claims by the Contractor against the Owner are subject to the following terms and conditions, and strict compliance with this Article 12 shall be a condition precedent to any liability of Owner therefor.

12.1.1 All Contractor claims against the Owner, including without limitation claims in respect of changes in the Contract Price or Contract Time, shall be initiated by a written notice of claim submitted to the Owner and the Architect. Such written notice of claim shall be received by the Owner and the Architect no later than seven (7) calendar days after the event, or the first appearance of the circumstances, causing the claim, and same shall set forth in detail all known facts and circumstances supporting the claim, including the amount claimed. Contractor agrees and acknowledges that its failure

to provide written notice of a claim as set forth herein shall constitute a waiver of any claim for additional compensation or time extension related thereto.

12.1.2 Upon discovering an event or condition forming the basis of a claim, including a claim for an increase in the Contract Price or an extension of the Contract Time, Contractor shall, until the claim is resolved, commence to maintain separate records evidencing all costs and delays incurred in connection with the event or condition forming the basis for the claim.

12.1.3 No later than ten (10) days after the date of the written notice of claim, Contractor shall submit a formal written claim which shall include at least the following information: (1) a concise statement of the occurrence(s) supporting the claim; (2) identification of the facts giving rise to the claim; (3) the date Contractor discovered the occurrence(s); (4) a detailed schedule of values identifying all costs resulting from the claim; (5) documentation supporting the schedule of values; (6) identification of any impact the claim has on the critical path schedule; and (7) all correspondence, internal memoranda, progress notes, and other documentation relating to the events which form the basis of the claim. In the event the claim relates to a Change Order, Contractor's formal written claim shall also include Contractor's good faith estimate of the change in the Contract Price, the Contract Time, or both, determined in accordance with Article 14 in respect of the Change Order. Other information or documents shall be submitted to Owner and Architect within ten (10) days after written request by Owner or Architect. The failure to provide a claim as set forth herein, or the failure to provide such other documents or information requested by Owner or Architect within ten (10) days after the written request, shall constitute a waiver of any claim for additional compensation or time extension related thereto.

12.1.4 The Contractor shall provide, and continue to provide, to Owner and Architect all such documentation, including cost and time records, as and when Owner or Architect may request so that Owner and Architect may evaluate Contractor's claim.

12.1.5 The Contractor and the Owner shall continue their performance hereunder regardless of the existence of any claims submitted by the Contractor.

12.1.6 In the event the Contractor discovers previously concealed and unknown site conditions which are materially at variance from those typically and ordinarily encountered in the general geographical location of the Project, the Contract Price shall be modified, either upward or downward, upon the written claim made by either party within seven (7) calendar days after the first appearance to such party of the circumstances. As a condition precedent to the Owner having any liability to the Contractor due to concealed and unknown conditions, the Contractor must give the Owner and the Architect written notice of, and an opportunity to observe, such condition prior to disturbing it. The failure by the Contractor to give the written notice and make the claim as provided by this Subparagraph 12.1.6 shall constitute a waiver by the Contractor of any rights arising out of or relating to such concealed and unknown condition.

12.1.7 In the event the Contractor seeks to make a claim, including a claim for an increase in the Contract Price, as a condition precedent to any liability of the Owner therefor, the Contractor shall strictly comply with the requirements of Subparagraph 12.1.1, above, and such notice shall be given by the Contractor before proceeding to execute any additional or changed Work. Failure of the condition precedent to occur shall constitute a waiver by the Contractor of any claim for money or additional compensation.

12.1.8 In connection with any claim by the Contractor against the Owner for money or compensation in excess of the Contract Price, any liability of the Owner for the Contractor's cost shall be strictly limited to direct cost reasonably incurred by the Contractor and shall in no event include indirect cost or consequential damages of the Contractor. The Owner shall have no liability to the Contractor for, and the Contractor hereby waives all rights to, the following claims: loss of financing; loss or impairment of bonding; loss of business; loss of profit and overhead on Work not yet performed; loss of future or anticipated profits from other work; or, home office overhead. Notwithstanding the foregoing first two sentences of this Subparagraph 12.1.8, the Owner's limitation of liability shall not apply to the Owner's

liability to the Contractor, if any, for claims arising out of bodily injury to persons, death or damage to property caused by or resulting from the sole negligence of the Owner, or its officers, agents or employees. The Owner shall not be liable to the Contractor for Claims of subcontractors for extra Work or changes in the Work unless and until liability of the Contractor has been established therefor in a court of competent jurisdiction.

12.2 Delays Generally. In the event the Contractor is delayed in performing any task which at the time of the delay is then critical, or which during the delay becomes critical, as the sole result of: (i) any act or omission by the Owner or someone acting in the Owner's behalf, (ii) any Owner-authorized Change Order, (iii) acts of God, (iv) unusually severe weather, (v) any order of a governmental authority having jurisdiction over the Project which order is issued through no fault of the Contractor, (vi) acts of war, or (vii) acts of terrorism, then the date for achieving Substantial Completion, or, as applicable, Final Completion, shall be appropriately adjusted by the Owner upon the written notice and claim of the Contractor to the Owner and the Architect for such reasonable time as Owner may determine. A task is critical within the meaning of this Paragraph 12.2 if, and only if, said task is on the critical path of the Project schedule so that a delay in performing such task will delay the ultimate completion of the Project. Any claim for an extension of time by the Contractor shall strictly comply with the requirements of Subparagraph 12.1.1 above and such notice shall be given by Contractor before proceeding to execute any additional or changed Work. If the Contractor fails to give such notice, any claim for an extension of time shall be waived.

12.2.1 The Contractor agrees that the Work shall be prosecuted regularly, diligently, and without interruption at such rate of progress as will insure full completion thereof within the time required by the Contract Documents. It is expressly understood and agreed that the Contractor has considered all contingencies and factors affecting its ability to perform all the Work within this time, including without limitation, delays caused by any fact or condition other than those expressly set forth in clauses (i) through (vii) of the foregoing Paragraph 12.2, and after consideration of all such contingencies and factors, Contractor has made an allowance for such contingencies and factors before agreeing to the time for completion specified in the Contract Documents, and does further agree that all things considered, such time for completion is a reasonable time for completion of all Work to be performed hereunder, without the need for any extension of time for any reasons other than those expressly set forth in clauses (i) through (vii) of the foregoing Paragraph 12.2.

12.2.2 The date for achieving Substantial Completion or, as applicable, Final Completion will not be extended due to unusually severe weather (excepting unusually severe weather which precludes access to the Project site) after the Project is enclosed or due to normal severe weather. For the purpose of this Paragraph, the term "enclosed" is defined to mean when the building is sufficiently sealed, either temporarily or permanently, to permit the structure to be heated and the roof dried in to permit finishing trades to work. There shall be no extension of the time for completion due to any lost days that are not weekday working days (based on a Monday through Friday work week). No change in the Contract Price shall be due because of weather.

12.3 Mediation. Any claim, dispute or other matter in question arising out of or related to this Contract shall be subject to mediation as a condition precedent to the institution of legal or equitable proceedings by either party. If such matter relates to or is the subject of a lien arising out of the Contractor's services, the Contractor may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to resolution of the matter by mediation. The Owner and Contractor shall endeavor to resolve claims, disputes and other matters in question between them by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect. Request for mediation shall be filed in writing with the other party to this Contract and with the American Arbitration Association. The request may be made concurrently with the filing of a civil action but, in such event, mediation shall proceed in advance of legal or equitable proceedings, which may be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or a court order. The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon.

Subject to the express approval of the Walker County Board of Education, agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

ARTICLE 13

SUBCONTRACTORS

Upon execution of this Contract, the Contractor shall identify to the Owner and the Architect, in writing, those parties intended as subcontractors on the Project. The Owner shall, in writing, state any objections the Owner may have to one or more of such subcontractors. The Contractor shall not enter into a subcontract with an intended subcontractor with whom the Owner objects. All subcontracts shall afford the Contractor rights against the subcontractor which correspond to those rights afforded to the Owner against the Contractor herein, including those rights of Contract termination as set forth hereinbelow. The Architect will not enter into disputes between the Contractor and any subcontractor or supplier, nor shall the Architect be called upon to settle same. Neither shall the Architect be called upon to enter into or to settle disputes between any subcontractors or suppliers.

ARTICLE 14

CHANGE ORDERS

14.1 **Generally.** One or more changes to the Work within the general scope of this Contract, or the time for the Contractor's performance, or any combination thereof, may be ordered by Change Order. The Contractor shall proceed with any such changes, and same shall be accomplished in strict accordance with the following terms and conditions:

14.1.1 "Change Order" shall mean a written order to the Contractor executed by the Owner and the Architect after execution of this Contract, and approved by the Georgia Department of Education if so required, directing a change in the Work, the time for the Contractor's performance, or any combination thereof.

14.1.2 A change in the Work (excepting only changes required by the Architect pursuant to Paragraph 11.1.9 of this Contract) or the time for the Contractor's performance may be made only by Change Order. The Owner will not be responsible for any change in the Work involving extra costs unless approval in writing is furnished by the Owner before such Work is begun. Note that the Architect does not have authority to order changes in the Work that involve changes in cost or time.

14.1.3 Any change in the Contract Price resulting from a Change Order shall be determined as follows:

- (a) Any increase in the Contract Price must be requested by Contractor pursuant to the terms and conditions of Article 12 of this Contract, and any such request for an increase in the Contract Price shall be subject to Paragraph 14.1.5 of this Contract. The failure of Contractor to provide notice in writing to Owner and Architect in accordance with Article 12 of this Contract of any request for an increase in the Contract Price shall constitute a waiver by Contractor of any entitlement to an increase in the Contract Price;
- (b) The change in the Contract Price, if any, shall be established on the basis of, and shall be limited to, the reasonable actual costs incurred or savings achieved, as defined below, resulting from the change, plus a component for direct jobsite overhead and profit, as set forth below, but shall not include home office overhead or other indirect costs or components. If, and to the extent, the change involves Work of one or more subcontractors, the overhead and profit component for subcontractors shall be five percent (5%) and the overhead and profit component for the Contractor shall be five percent (5%) of the amount allocable

for subcontracted Work; provided, however, that the foregoing five percent (5%) overhead and profit component for subcontractors is intended to cover all subcontractors of any tier, and there shall be no additional overhead and profit component for subcontractors below first-tier subcontractors of the Contractor. If the change involves only Work of the Contractor, the component for overhead and profit shall be ten percent (10%). Any such costs or savings shall be documented in the format, and with such content and detail, as the Owner or the Architect require. As used in this Subparagraph 14.1.3(b), reasonable actual costs incurred or savings achieved means, and shall be limited to, the following:

- (i) Actual, reasonable costs of materials and the use of heavy construction equipment;
- (ii) Actual, reasonable costs of supervision and labor, plus, solely as applicable thereto, social security, unemployment insurance, fringe benefits required by agreement or custom, and worker's compensation insurance;
- (iii) Actual, reasonable rental costs of machinery and equipment (exclusive of small tools or hand tools) whether rented from Contractor or others; and
- (iv) Actual, reasonable costs of premiums for bonds, permit fees, and sales, use or other taxes related to the Work.

All costs not set forth in the immediately preceding subsections (i) through (iv) shall be considered as overhead, including without limitation insurance other than that set forth above, travel (including transportation, meals and lodging), administrative staff, watchmen, hand tools, small power tools, incidental job burdens, engineering, drafting, and office expense (including costs of preparing Change Order proposal estimates). In no event shall any costs or savings associated with Contractor's home office overhead or other indirect costs be considered to be actual costs incurred or savings achieved resulting from a Change Order and Contractor's compensation for additional Work shall be limited strictly as set forth herein.

- (c) The Contractor shall continue to diligently perform the Work, including any change directed by the Owner by Change Order, and shall keep thorough records of the cost of performance of such Change Order consistent with and in accordance with the provisions of Subparagraph 14.1.3 above. Pending final determination of reasonable actual costs incurred or savings achieved, payments on account shall be made to Contractor in accordance with said Subparagraph 14.1.3 and Article 6 of this Contract.
- (d) If unit prices are provided in the Contract, and if the quantities contemplated are materially changed in a proposed Change Order such that an application of the unit prices to the quantities of Work proposed would cause inequity to the Owner or the Contractor, then, subject to the three (3) immediately succeeding sentences, the applicable unit prices shall be equitably adjusted at the request of either party made in accordance with such other provisions of this Contract as are applicable to such party. No such equitable adjustment shall be made with respect to the quantities contemplated in the Contract. Any equitable adjustment to unit prices pursuant to this Subparagraph 14.1.3(d) shall be made only with respect to the difference between the quantity of applicable units of Work contemplated in the Contract and the quantity of applicable units of Work resulting after giving effect to such a proposed Change Order, and an equitable

adjustment shall be made only if such difference is a material difference from the quantities contemplated in the Contract. Any increase to unit prices pursuant to this Subparagraph 14.1.3(d) shall be conditioned and contingent upon the Contractor demonstrating proof, satisfactory to the Owner and the Architect, that such increase in the unit price is due solely to increased cost per unit caused solely by such a material change in quantities.

14.1.4 Any extension of the time for the Contractor's performance requested by Contractor for performance of any change in the Work ordered by Owner may be granted by mutual agreement and then set forth in the Change Order. Otherwise, extensions of the time for the Contractor's performance shall be requested by Contractor pursuant to the terms and conditions of Article 12 of this Contract and any such request for extension of time shall be subject to Paragraph 14.1.5 of this Contract. The failure of Contractor to provide notice in writing to Owner in accordance with Article 12 of this Contract of any request for extension of time, or the Contractor's execution of a Change Order, shall constitute a waiver by Contractor of any entitlement to an extension of time arising out of or relating to such Change Order.

14.1.5 The execution of a Change Order by the Contractor shall constitute conclusive evidence of the Contractor's agreement to the ordered changes in the Work, this Contract as thus amended, the Contract Price and the time for performance by the Contractor. The Contractor, by executing the Change Order, waives and forever releases any claim against the Owner for additional time or compensation for matters relating to or arising out of or resulting from the Work included within or affected by the executed Change Order.

14.1.6 The Contractor shall notify and obtain the consent and approval of the Contractor's Surety with reference to all Change Orders if such notice, consent or approval are required by the Owner, the Architect, the Contractor's Surety or by law. The Contractor's execution of the Change Order shall constitute the Contractor's warranty to the Owner that the Surety has been notified of, and consents to, such Change Order and the Surety shall be conclusively deemed to have been notified of such Change Order and to have expressly consented thereto.

ARTICLE 15

DISCOVERING AND CORRECTING DEFECTIVE OR INCOMPLETE WORK

15.1 Work in Violation of Contract. In the event that the Contractor covers, conceals or obscures its Work in violation of this Contract or in violation of a directive from the Owner or the Architect, such Work shall be uncovered and displayed for the Owner's or Architect's inspection upon request, and shall be reworked at no cost in time or money to the Owner.

15.2 Work in Conformity with Contract. If any of the Work is covered, concealed or obscured in a manner not covered by Paragraph 15.1 above, it shall, if directed by the Owner or the Architect be uncovered and displayed for the Owner's or Architect's inspection. If the uncovered Work conforms strictly with this Contract, the costs incurred by the Contractor to uncover and subsequently replace such Work shall be borne by the Owner. Otherwise, such costs shall be borne by the Contractor.

15.3 Defective or Nonconforming Work. The Contractor shall, at no cost in time or money to the Owner, timely correct Work rejected by the Owner or by the Architect as defective or failing to conform to this Contract. Additionally, the Contractor shall reimburse the Owner for all testing, inspections and other expenses incurred as a result thereof.

15.4 Duty to Correct Defective or Nonconforming Work. In addition to its warranty obligations set forth elsewhere herein, the Contractor shall be specifically obligated to correct any and all defective or nonconforming Work for a period of twelve (12) months following Final Completion upon written direction from the Owner. The Owner shall promptly notify Contractor of any noted defective or nonconforming Work. Contractor shall within two (2) business days respond by visiting the site and commencing, and

promptly completing, any necessary remedial Work including needed maintenance instructions to Owner's personnel.

15.5 Owner's Option. The Owner may, but shall in no event be required to, choose to accept defective or nonconforming Work. In such event, the Contract Price shall be reduced by the greater of (a) the reasonable costs of removing and correcting the defective or nonconforming Work, and (b) the difference between the fair market value of the Project as constructed and the fair market value of the Project had it not been constructed in such a manner as to include defective or nonconforming Work. If the remaining portion of the unpaid Contract Price, if any, is insufficient to compensate the Owner for the acceptance of defective or nonconforming Work, the Contractor shall, upon written demand from the Owner, pay the Owner such remaining compensation for accepting defective or nonconforming Work.

ARTICLE 16

TERMINATION BY THE CONTRACTOR

If the Owner repeatedly fails to perform its material obligations to the Contractor for a period of sixty (60) days after receiving written notice from the Contractor of its intent to terminate hereunder, the Contractor may terminate performance under this Contract by written notice to the Owner and the Architect. If the Owner suspends Contractor's performance for a period of more than one hundred twenty (120) days, through no fault of the Contractor, then Contractor may, upon seven (7) days written notice to Owner, terminate this Contract. In either event, the Contractor shall be entitled to recover from the Owner as though the Owner had terminated the Contractor's performance under this Contract for convenience pursuant to Paragraph 18.1 hereunder.

ARTICLE 17

OWNER'S RIGHT TO SUSPEND CONTRACTOR'S PERFORMANCE

17.1 Suspension. The Owner shall have the right at any time to direct the Contractor to suspend its performance, or any designated part thereof, for any reason whatsoever, or without reason, for a cumulative period of up to one hundred twenty (120) calendar days. If any such suspension is directed by the Owner, the Contractor shall immediately comply with same.

17.2 Compensation. In the event the Owner directs a suspension of performance under this Article 17, through no fault of the Contractor, the Owner shall pay the Contractor as full compensation for such suspension the Contractor's reasonable costs, actually incurred and paid, of:

- 17.2.1 demobilization and remobilization, including such costs paid to subcontractors;
- 17.2.2 preserving and protecting Work in place;
- 17.2.3 storage of materials or equipment purchased for the Project, including insurance thereon; and,
- 17.2.4 performing in a later, or during a longer, time frame than that contemplated by this Contract.

ARTICLE 18

TERMINATION BY THE OWNER

18.1 Termination for Convenience. The Owner may, for any reason whatsoever, terminate performance under this Contract by the Contractor for convenience. The Owner shall give written notice of such termination to the Contractor specifying when termination becomes effective. The Contractor shall incur no further obligations in connection with the Work and the Contractor shall stop Work when such termination becomes effective. The Contractor shall also, at the Owner's direction, either terminate or assign to Owner or Owner's designee outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The Owner may direct the Contractor to assign the Contractor's right, title and interest under terminated orders or subcontracts to the Owner or its designee. The Contractor shall transfer title and deliver to the Owner such completed or partially completed Work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has. When terminated for convenience, the Contractor shall be compensated as follows:

18.1.1 The Contractor shall submit a termination claim to the Owner and the Architect specifying the amounts due because of the termination for convenience together with costs, pricing or other data required by the Owner or the Architect. If the Contractor fails to file a termination claim within one (1) year from the effective date of termination, the Owner shall pay the Contractor, an amount derived in accordance with Subparagraph 18.1.3 below.

18.1.2 The Owner and the Contractor may agree to the compensation, if any, due to the Contractor hereunder.

18.1.3 Absent agreement to the amount due to the Contractor, the Owner shall pay the Contractor the following amounts:

- (a) Contract prices for labor, materials, equipment and other services accepted under this Contract;
- (b) Reasonable costs incurred in preparing to perform and in performing the terminated portion of the Work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for direct jobsite overhead and profit thereon (such profit shall not include anticipated profit or consequential damages); provided however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss, if any; and,
- (c) Reasonable costs of settling and paying claims arising out of the termination of subcontracts or orders pursuant to Paragraph 18.1 of this Contract. These costs shall not include amounts paid in accordance with other provisions hereof.

The total sum to be paid the Contractor under this Paragraph 18.1 shall not exceed the total Contract Price, as properly adjusted, reduced by the amount of payments otherwise made, and shall in no event include duplication of payment.

18.2 Termination for Cause. If the Contractor does not perform the Work, or any part thereof, in a timely manner, supply adequate labor, supervisory personnel or proper equipment or materials, or if it fails to timely discharge its obligations for labor, equipment and materials, or proceeds to disobey applicable law, or otherwise commits a violation of a material provision of this Contract, then the Owner, in addition to any other rights it may have against the Contractor or others, may terminate the performance of the Contractor and assume possession of the Project site and of all materials and equipment at the site and may complete the Work. In such case, the Contractor shall not be paid further

until the Work is complete. After Final Completion has been achieved, if any portion of the Contract Price, as it may be modified hereunder, remains after the cost to the Owner of completing the Work, including all costs and expenses of every nature incurred, has been deducted by the Owner, such remainder shall belong to the Contractor. Otherwise, the Contractor shall pay and make whole the Owner for such cost. This obligation for payment shall survive the termination of the Contract. In the event the employment of the Contractor is terminated by the Owner for cause pursuant to this Paragraph 18.2 and it is subsequently determined by a Court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination for Convenience under Paragraph 18.1 and the provisions of Paragraph 18.1 shall apply.

18.3 Termination Not Subject to Article 12. Termination of this Contract by the Owner is not subject to the procedures set forth in Article 12.

ARTICLE 19

INSURANCE

The Contractor shall have and maintain insurance in accordance with the requirements of Exhibit "D" attached hereto and incorporated herein by reference.

ARTICLE 20

SURETY BONDS

The Contractor shall furnish separate performance and payment bonds to the Owner. Each bond shall set forth a penal sum in an amount equal to the Contract Price. Each bond furnished by the Contractor shall incorporate by reference the terms of this Contract as fully as though they were set forth verbatim in such bonds. In the event the Contract Price is increased by Change Order executed by the Contractor, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amount. The performance and payment bonds furnished by the Contractor shall be in the exact form provided by the Owner and shall be executed by a surety, or sureties, licensed in the State of Georgia by the Office of Commissioner of Insurance, rated A or better by A.M. Best Company, listed on the United States Department of Treasury's Listing of Approved Sureties (Treasury Department Circular 570) as a surety authorized to write bonds for the U.S. Government with a total underwriting limitation equal to or greater than the penal sum of the bonds as adjusted from time to time, and not otherwise reasonably objectionable to the Owner.

ARTICLE 21

PROJECT RECORDS

All documents relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Contractor, or any subcontractor of the Contractor, shall be made available to the Owner or the Architect for inspection and copying upon written request by the Owner. Furthermore, said documents shall be made available, upon request by the Owner, to any state, federal or other regulatory authority and any such authority may review, inspect and copy such records. Said records include, but are not limited to, all drawings, plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos, photographs, estimates, invoices, bills, receipts, cancelled checks, vouchers or other writings or things which document or involve in any manner the Project, its design, its cost, and its construction. Said records expressly include those documents reflecting the cost of construction to the Contractor and its Subcontractors. The Contractor shall maintain and protect these documents for no less than six (6) years after Final Completion of the Project, or for any longer period of time as may be required by law or good construction practice.

ARTICLE 22

APPLICABLE LAW / VENUE AND JURISDICTION

22.1 Applicable Law / No Waiver. The law applicable to this Contract shall be the law of the State of Georgia. Each and every provision required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein. Wherever possible, each provision of the Contract shall be interpreted in such manner as to be effective and valid under applicable law, but in case any one or more of the provisions contained therein shall, for any reason, be held to be invalid, illegal or unenforceable in any respect, such provision shall be ineffective to the extent, but only to the extent, of such invalidity, illegality or unenforceability without invalidating the remainder of such invalid, illegal or unenforceable provision or provisions or any other provisions hereof. The failure of owner to insist, in any one or more instances, upon the performance of any of the terms, covenants, or conditions of the Contract, or to exercise any right therein, shall not be construed as a waiver or relinquishment of such term, covenant, condition or right in any other instance. The Contractor and all subcontractors shall comply with all state and federal immigration laws, rules and regulations, and the Contractor and all subcontractors shall provide the Owner with a completed and signed Immigration and Security Form and accompanying affidavits, in the form attached hereto as Exhibit "E" as a condition precedent to Final Payment.

22.2 Jurisdiction and Venue. The Contractor and its Surety(ies) irrevocably consent to the non-exclusive venue and jurisdiction of the Superior Court of Walker County, Georgia, regarding any matter arising out of or relating to this Contract. The Contractor agrees that it shall file any lawsuit or other action, including any third-party practice lawsuit, against the Owner arising out of or related to this Contract or the Project only in the Superior Court of Walker County.

ARTICLE 23

SUCCESSORS AND ASSIGNS

Each party binds itself, its successors, assigns, executors, administrators or other representatives to the other party hereto and to successors, assigns, executors, administrators or other representatives of such other party in connection with all terms and conditions of this Contract. The Contractor shall not assign this Contract without prior written consent of the Owner.

OWNER:
WALKER COUNTY BOARD OF EDUCATION

CONTRACTOR:

By: _____ [Seal]
 [SIGNATURE]
_____, Chairperson
 [TYPED NAME & TITLE]

By: _____ [Seal]
 [SIGNATURE]
_____,
 [TYPED NAME & TITLE]

By: _____ [Seal]
 [SIGNATURE]
_____, Superintendent
 [TYPED NAME & TITLE]

 [ADDRESS]

Walker County Board of Education
201 South Duke Street
LaFayette, Georgia 30728

 [DATE OF EXECUTION]

 [DATE OF EXECUTION]

EXHIBIT "A"

**LIST OF PLANS AND SPECIFICATIONS
FOR THE PROJECT**

[Here insert or attach list of plans and specifications for the Project.]

EXHIBIT "B"

LIQUIDATED DAMAGES

Liquidated damages applicable to Paragraph 5.2 of this Contract shall be the amount stated in the right column below which is directly opposite the applicable Contract Price range stated in the left column below.

If The Original Contract Price Is:

Daily Liquidated Damages Shall Be:

| | |
|------------------------------------|--|
| Up to \$49,999.99 | \$50 |
| \$50,000.00 to \$99,999.99 | \$100 |
| \$100,000.00 to \$299,999.99 | \$200 |
| \$300,000.00 to \$599,999.99 | \$300 |
| \$600,000.00 to \$999,999.99 | \$400 |
| \$1,000,000.00 to \$1,999,999.99 | \$500 |
| \$2,000,000.00 to \$4,999,999.99 | \$750 |
| \$5,000,000.00 to \$9,999,999.99 | \$1,500 |
| \$10,000,000.00 to \$14,999,999.99 | \$2,500 |
| \$15,000,000.00 to \$19,999,999.99 | \$3,500 |
| \$20,000,000.00 or above | The product of .0002 multiplied by the Original Contract Price. |

EXHIBIT "C"

MINIMUM REQUIREMENTS FOR CONTRACTOR'S SCHEDULE OF CONSTRUCTION

PART 1 - GENERAL

- 1.1 DEFINITIONS. For purposes of this Exhibit "C", the following terms shall have the meanings set forth below.
- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
 - B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Price, unless otherwise approved by Architect and Owner.
 - C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the project.
 - D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall project duration and contains no float.
 - E. Event: The starting or ending point of an activity.
 - F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time belongs to Owner.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date.
 - G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
 - H. Major Area: A story of construction, a separate building, or a similar significant construction element.
 - I. Milestone: A key or critical point in time for reference or measurement.
 - J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.2 SUBMITTALS

- A. Preliminary Schedule of Construction: Submit two opaque copies.
 - 1. No action or inaction by Architect or Owner in connection with cost-loaded preliminary schedule of construction shall constitute or be deemed to constitute approval or acknowledgment of Schedule of Values for cost-loaded activities.
- B. Preliminary Network Diagram: Submit two opaque copies, large enough to show entire network or entire construction period. Show logic ties for activities.
- C. Contractor's Schedule of Construction: Submit two opaque copies of initial schedule and each updated schedule, large enough to show entire schedule for entire construction period.
 - 1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
 - 2. No action or inaction by Architect or Owner in connection with cost-loaded Contractor's Schedule of Construction shall constitute or be deemed to constitute approval or acknowledgment of Schedule of Values for cost-loaded activities.
- D. CPM Reports: Concurrent with CPM schedule, submit three copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 - 3. Total Float Report: List of all activities sorted in ascending order of total float.
 - 4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.
- E. Submittal of the preliminary schedule of construction, the initial Contractor's Schedule of Construction and updates thereto are for Architect's and Owner's information. No action or inaction by the Architect or Owner shall constitute or be deemed to constitute an approval of Contractor's Schedule of Construction.

1.3 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's or Owner's request.

- B. Prescheduling Conference: Conduct conference to review methods and procedures related to the Preliminary Schedule of Construction and Contractor's Schedule of Construction, including, but not limited to, the following:
1. Review software limitations and content and format for reports.
 2. Verify availability of qualified personnel needed to develop and update schedule.
 3. Discuss constraints, including, if applicable, phasing, work stages, area separations, interim milestones, and partial Owner occupancy.
 4. Review delivery dates for Owner-furnished products, if any.
 5. Review schedule for work of Owner's separate contracts, if any.
 6. Review time required for review of submittals and resubmittals.
 7. Review requirements for tests and inspections by independent testing and inspecting agencies.
 8. Review time required for completion and startup procedures.
 9. Review and finalize list of construction activities to be included in schedule.
 10. Review submittal requirements and procedures.
 11. Review procedures for updating schedule.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors, if any.
- B. Coordinate Contractor's Schedule of Construction with the Schedule of Values, list of subcontracts, submittals schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from parties involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 – PRODUCTS

2.1 CONTRACTOR'S SCHEDULE OF CONSTRUCTION, GENERAL

- A. Procedures: Comply with procedures not less stringent and protective of the Owner than contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 14 days, unless specifically allowed by Architect and Owner.
 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times in schedule. Coordinate submittal review times in Contractor's Schedule of Construction with submittals schedule.
 4. Startup and Testing Time: Include a sufficient number of days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Owner's administrative procedures necessary for approval of Substantial Completion.
- D. Constraints: If applicable, include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of work performed by Owner.
 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date. Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date. Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Startup and placement into final use and operation.

8. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion

9. Other Constraints: Show the effect of any additional constraints.

- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Commencement Date, Substantial Completion, and Final Completion and interim milestones required by Owner, if any.

- F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
 1. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Architect's and Owner's approval, be assigned to fabrication and delivery activities. Costs shall be under required principal subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, project record documents, and demonstration and training (if applicable), in an appropriate amount.
 2. Each activity cost shall reflect an accurate value subject to objection by Architect or Owner.
 3. Total cost assigned to activities shall equal the total Contract Price.

- G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

1. Use software, version and operating system required by Owner.

2.2 CONTRACTOR'S SCHEDULE OF CONSTRUCTION (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. Preliminary Network Diagram: Submit diagram within 7 days of date established for commencement of the Work. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Schedule of Construction using a computerized, cost-loaded and resource-loaded, time-scaled CPM network analysis diagram for the Work.

1. Submit CPM schedule within 15 days after date established for commencement of the Work.

a. Failure to include any Work item required for performance of this Contract shall not excuse Contractor from completing all Work within applicable completion dates.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.

3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.

4. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

a. Preparation and processing of submittals.

b. Mobilization and demobilization.

c. Purchase of materials.

d. Delivery.

e. Fabrication.

f. Utility interruptions.

g. Installation.

h. If applicable, work by Owner that may affect or be affected by Contractor's activities.

i. Testing and start up.

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

- G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
 2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
 3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
 4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

PART 3 - EXECUTION

3.1 CONTRACTOR'S SCHEDULE OF CONSTRUCTION

- A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
 2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- B. Contractor's Schedule of Construction Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate actual completion percentage for each activity.
- C. Distribution: Distribute copies of schedule to Architect, Owner, separate contractors, testing and inspecting agencies, subcontractors and other parties identified by Contractor with a need-to-know.
1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF EXHIBIT "C"

EXHIBIT "D"

REQUIRED INSURANCE

(1) The Contractor shall purchase and maintain such insurance as will protect it from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by itself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

(a) claims under workers' or workmen's compensation disability benefit or other similar employees benefit acts;

(b) claims for damages because of bodily injury, occupational sickness or disease or death of its employees;

(c) claims for damages because of bodily injury, sickness or disease, or death of any person other than its employees;

(d) claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person;

(e) claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and

(f) claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

(2) The insurance required by Paragraph 1 shall be written for not less than any limits of liability specified within this exhibit, or required by law, whichever is greater.

(3) The insurance required by Paragraph 1 shall include contractual liability insurance.

(4) The Contractor shall be responsible from the time of signing the Contract or from the time of the beginning of the first Work, whichever shall be earlier, for all bodily injury (including death) or damage to property of any kind resulting from the Work under this Contract to persons or property.

The Contractor assumes the obligation to save the Owner, the Walker County School District and the Architect harmless and to indemnify them from every expense, liability or payment arising out of or through bodily injury (including death) to any person or persons or damage to property of any person arising out of any act of the Contractor, any subcontractor or anyone either directly or indirectly employed by or under the supervision of any of them in the prosecution of the Work included in the Contract.

All liability policies shall name the Owner, the Walker County School District and the Architect as an additional insured. All liability policies shall be issued on a primary and non-contributory basis over any other liability insurance which may be available to the Owner, the Walker County School District and Architect to fully insure the indemnity obligations made herein and in any other portion of this contract.

(5) The Contractor agrees to comply with the provisions of the Workman's Compensation laws of the State of Georgia and to require all Subcontractors likewise to comply. Contractor shall secure the following insurance at his own expense and prior to starting any Work shall file Certificates of Insurance with the Owner except that on the Owner's Protective Insurance, original policies shall be filed with the Owner.

(a) Workmen's Compensation - Statutory Limits, Employer's Liability -\$1,000,000.00

(b) Comprehensive General Liability (including Premises-Operations; Independent Contractors Protective; Products and Completed Operations; Broad Form Property Damage and Broad Form General Liability Endorsement; Explosion & Collapse).

1. Bodily Injury: \$1,000,000.00 Each Occurrence; \$2,000,000.00 Aggregate, Products and Completed Operations (Umbrella).
2. Property Damage: \$500,000.00 Each Occurrence; \$1,000,000.00 Aggregate.
3. Products and Completed Operations Insurance shall be maintained for a minimum period of three (3) years after completion of the work and Contractor shall continue to provide evidence of such coverage to Owner on an annual basis during the aforementioned period.
4. Property Damage Liability Insurance shall include coverage for Explosion, Collapse, and Underground.
5. Contractual Liability (Hold Harmless Coverage): Bodily Injury: \$1,000,000.00 Each Occurrence; Property Damage: \$500,000.00 Each Occurrence, \$500,000.00 Aggregate.
6. Personal Injury, with Employment Exclusion deleted: \$1,000,000.00 Each Occurrence, \$1,000,000 Aggregate.
7. If the Comprehensive General Liability policy provides that the general aggregate limit for items (5)(b) 1-6 above apply separately to **each** project, then the Owners Protective Liability policy in item (8) (a)-(c) shall not be required.

(c) Comprehensive Automobile Liability (owned, non-owned, leased, hired):

1. Bodily Injury: \$1,000,000.00 Each Person, \$1,000,000.00 Each Accident;
2. Property Damage: \$1,000,000.00 Each Occurrence;
3. or \$1,000,000 Combined Single Limit.

(d) Commercial Umbrella

1. Umbrella limits shall be the amount stated in the right column below which is directly opposite the applicable Contract Price range stated in the left column below:

| Contract Price | Required Umbrella Limit |
|-----------------------------|-------------------------|
| Less than \$1,000,000 | \$1,000,000 |
| \$1,000,000 to \$10,000,000 | \$5,000,000 |
| Greater than \$10,000,000 | \$10,000,000 |

2. In the event that the Contract Price is increased by Change Order, the umbrella limits shall automatically be increased to the limits stated in the foregoing table in (5)(d)1.
3. Umbrella coverage must include as insureds all entities that are additional insureds on the Commercial General Liability policy.
4. Umbrella coverage for such additional insureds shall apply as primary before any other

insurance or self insurance, including any deductible, maintained by or provided to the additional insured by the Owner, the Walker County School District and Architect.

(6) Certificates of Insurance (2 copies) shall be filed with Owner before commencement of Work. These Certificates shall contain a provision that coverages afforded under the policies will not be canceled, changed or allowed to expire until thirty (30) days after the Owner has received written notice evidenced by return receipt of registered letter.

(7) Insurance will not be acceptable unless written by a Company authorized by the State of Georgia Insurance Department to do business in Georgia at the time the policy is issued and the company must in addition be acceptable to the Owner.

(8) Contractor shall purchase and maintain Owner's Protective Liability Policy with minimum limits of:

- (a) Bodily Injury: \$1,000,000.00 Each Occurrence, \$2,000,000.00 Aggregate.
- (b) Property Damage: \$2,000,000.00 Each Occurrence, \$2,000,000.00 Aggregate.
- (c) Personal Injury, with Employment Exclusion deleted: \$1,000,000.00 Aggregate.

This policy shall be issued in the name of the Walker County Board of Education and delivered to Owner along with Certificates of Insurance. Employees of the Walker County Board of Education shall be included as an additional insured. Policy shall also name the Walker County School District and the Architect as an additional insured.

(9) Contractor shall purchase and maintain BUILDER'S RISK INSURANCE payable to the Contractor and Owner, as their interest may appear, upon the entire structure and all materials in or adjacent thereto which are to be made a part of the insured structure of 100% of the insurable value thereof covering fire, theft, extended coverage, vandalism and malicious mischief. There shall be attached to and made a part of the insurance policy for Builder's Risk an endorsement of the Insurance Company as shown on Exhibit "D-1" attached hereto.

(10) The Contractor may, at his option, purchase insurance policies having a "deductible" feature provided that:

- (a) Deductible amount does not exceed \$10,000.00.
- (b) Contractor agrees in written letter to the Owner (through the Architect) to be responsible for payment of any such deductibles, in the event that such payment should become necessary.

EXHIBIT D - 1

ENDORSEMENT TO BUILDER'S RISK

Attached to and forming part of Policy No. _____ of the _____ Insurance Company, issued at its _____, _____ Agency.

In consideration of the premium for which the policy is written and proper rate adjustment when applicable, the insurance company agrees as follows:

- (1) The insurance company consents and agrees that furniture and equipment may be delivered to the insured premises and installed in place, ready for use, and said delivery and installation of furniture and equipment shall in no way diminish, change, alter or otherwise affect the coverage and protection afforded the insured under said policy.
- (2) The insurance company consents and agrees that insured premises may be occupied, and said occupation shall in no way diminish, change, alter or otherwise affect the coverage and protection afforded the insured under said policy. The insured shall give notice to insurance company of any partial occupancy.
- (3) The insurance company recognizes the right of the Owner of the insured premises to perform other Work in connection with construction operations insured under this policy and agrees that performance of other work by the said Owner, by agents of the said Owner, or by Contractors employed by said Owner, shall in no way diminish, change, alter or otherwise affect protection afforded under said policy.
- (4) The insurance company agrees that this policy shall not be canceled, changed, allowed to lapse or to expire until thirty (30) days after the Owner has received written notice thereof as evidenced by return receipt of registered letter.

The foregoing insurance provisions have been incorporated into by reference and are hereby made a part of insurance Policy No. _____, this ___ day of _____, 20 ___.

Name of Company

Authorized Signature

DISPOSITIONS: Policy to be deposited with Architect prior to commencement of Work.

EXHIBIT "E"
IMMIGRATION AND SECURITY FORM

A. In order to insure compliance with the Immigration Reform and Control Act of 1986 (IRCA), Pub.L. 99-603 and the Georgia Security and Immigration Compliance Act O.C.G.A. § 13-10-90 et. seq., Contractor must certify compliance by initialing one of the sections below:

_____ Contractor has 500 or more employees and Contractor warrants that Contractor has complied with the Immigration Reform and Control Act of 1986 (IRCA) Pub.L. 99-603 and the Georgia Security and Immigration Compliance Act by registering at <https://www.vis-dhs.com/EmployerRegistration> and verifying information of all new employees; and by executing any affidavits required by the rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-1-.01 et. seq.

_____ Contractor has 100-499 employees and Contractor warrants that no later than July 1, 2008, Contractor will register at <https://vis-dhs.com/EmployerRegistration> to verify information of all new employees in order to comply with the Immigration Reform and Control Act of 1986 (IRCA) Pub.L. 99-603 and the Georgia Security and Immigration Compliance Act; and by executing any affidavits required by the rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-1-.01 et. seq.

_____ Contractor has 99 or fewer employees and Contractor warrants that no later than July 1, 2009, Contractor will register at <https://vis-dhs.com/EmployerRegistration> to verify information of all new employees in order to comply with the Immigration Reform and Control Act of 1986 (IRCA), Pub.L. 99-603 and the Georgia Security and Immigration Compliance Act; and by executing any affidavits required by the rules and regulations issued by the Georgia Department of Labor set forth at Rule 300-10-1-.01 et. seq.

B. Contractor warrants that Contractor has included a similar provision in all written agreements with any subcontractors engaged to perform services under its Contract(s) with the Walker County Board of Education.

Signature Title
By signing above you are certifying that the representations made herein are true and correct.

Firm Name: _____
Street/Mailing Address: _____
City, State, Zip Code: _____
Telephone Number: _____
Email Address: _____

Sworn to and subscribed before me
This ___ day of _____, 20__

Notary Public

CONTRACTOR AFFIDAVIT

By executing the affidavit, the undersigned contractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with _____ (name of contractor) on behalf of _____ (name of public employer) has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

EEV / Basic Pilot Program* User Identification Number

BY: Authorized Officer of Agent
(Contractor Name)

Date

Title of Authorized Officer or Agent of Contractor

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE
_____ DAY OF _____, 200__

Notary Public
My Commission Expires:

* As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV / Basic Pilot Program" operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

SUBCONTRACTOR AFFIDAVIT

By executing the affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with _____ (name of contractor) on behalf of _____ (name of public employer) has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

EEV / Basic Pilot Program* User Identification Number

BY: Authorized Officer of Agent
(Subcontractor Name)

Date

Title of Authorized Officer or Agent of Subcontractor

Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE
_____ DAY OF _____, 200__

Notary Public
My Commission Expires:

* As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV / Basic Pilot Program" operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).

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 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. The installation of a new TPO roof membrane over the existing TPO roof membrane and the installation of new metal gutters and downspouts.
 - 2. The Work includes, but is not limited to:
 - a. New TPO Roof membrane
 - b. New gutters and downspouts.
 - c. Replacement of existing wood deteriorated wood nailers.
 - 3. The Work does not include:
 - a. County and municipal permit fees, inspection fees and impact fees.

1.3 CONSTRUCTION DELIVERY METHOD

- A. Design-Bid-Build with General Contractor.

1.4 CONTRACTS

- A. Project will be constructed under a single prime contract.
- B. The contract form for this project is WCSS Standard Form of Fixed Price Contract (12.2009.GKM).

1.5 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Concurrent Work: Owner **will award** separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.
 - 1. HVAC Renovations to Chattanooga Valley Elementary School: To Smithfield Construction Group **for** HVAC renovations including the replacement of mechanical equipment on the roof.

1.6 ACCESS TO SITE

- A. General: Contractor/Construction Manager shall have full use of Project site for construction operations during construction period. Contractor's/Construction Manager's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
 - 1. Limits: Confine construction operations to buildings A, and B.

1.7 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations including limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Owner not less than two days in advance of proposed disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- D. Controlled Substances: Use of any controlled substances **including tobacco products** are not permitted on Project site.
- E. Employee Identification: Provide identification tags for Contractor/Construction Manager personnel working on Project site. Require personnel to use identification tags at all times.
- F. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor/Construction Manager personnel working on Project site.

1. Contractor/Construction Manager shall comply and shall require all subcontractors and sub-subcontractors to comply, with the Immigration and Control Act of 1986 and with the Georgia Security and Immigration Act of 2006.
2. Contractor/Construction Manager shall maintain list of approved screened personnel with Owner's representative.

END OF SECTION 01 10 00
01 920 038

PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
- C. Related Requirements:
 - 1. Section 01 22 00 "Unit Prices" for procedures for using unit prices.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise the Owner and Architect/Engineer of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Owner's or Architect's request, obtain proposals for each allowance for use in making final selections.
- C. Purchase products and systems selected by Owner or Architect/Engineer from the designated supplier.

1.4 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.5 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.6 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.7 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor/Construction Manager of specific products and materials ordered by Owner or selected by Architect/Engineer under allowance and shall include taxes, freight and delivery to Project site.
- B. Unless otherwise indicated, Contractor's/Construction Manager's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect/Engineer under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by the Owner or Architect/Engineer, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's/Construction Manager's handling, labor, installation, overhead, and profit.
 - 1. Do not include Contractor's/Construction Manager's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
 - 2. No change to Contractor's/Construction Manager's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 2: Lump-Sum Allowance: Include the sum of \$8,000.00 for the replacement of damaged wood roof nailers as specified in Section 06 10 53 Miscellaneous Rough Carpentry Use the wood nailer unit prices to determine the credit or add change order to the contract price.

- 1. For this allowance material cost, receiving, handling, installation, and Contractor's/Construction Manager's and subcontractor's costs for overhead and profit and general conditions are included in the **allowance**.

END OF SECTION 01 21 00

01 920 038

PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
 - 1. Section 01 26 00 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

- A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's/Construction Manager's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor/Construction Manager.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION****3.1 SCHEDULE OF UNIT PRICES**

- A. Unit Price No. 1 – Wood Nailers (2 x 4):
 - 1. Description: Contractor is to price new 2x4 pressure treated wood nailers per linear foot for the replacement of existing wood nailers according to Section 06 10 53 'Miscellaneous Rough Carpentry'.
 - 2. Unit of Measurement: Linear Feet
- B. Unit Price No. 2 – Wood Nailers (2 x 6):
 - 1. Description: Contractor is to price new 2x6 pressure treated wood nailers per linear foot for the replacement of existing wood nailers according to Section 06 10 53 'Miscellaneous Rough Carpentry'.
 - 2. Unit of Measurement: Linear Feet
- C. Unit Price No.3 – Wood Nailers (2 x 8):
 - 1. Description: Contractor is to price new 2x8 pressure treated wood nailers per linear foot for the replacement of existing wood nailers according to Section 06 10 53 'Miscellaneous Rough Carpentry'.
 - 2. Unit of Measurement: Linear Feet

END OF SECTION 01 22 00

01 920 038

PART 1 - GENERAL

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.

SUMMARY

- B. Section includes administrative and procedural requirements for substitutions.
- C. Related Requirements:
1. Section 01 60 00 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

DEFINITIONS

- D. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
1. Substitutions for Cause: Changes proposed by Contractor/Construction Manager that are required due to changed Project conditions, such as unavailability of product, regulatory changes, unavailability of required warranty terms or the need to reduce construction cost through "value engineering".
 2. Substitutions for Convenience: Changes proposed by Owner that are not required in order to meet other Project requirements but may offer advantage to the Owner.

ACTION SUBMITTALS

- E. Substitution Requests Prior to Bidding: Submit **1** (one) copy of request for product consideration. Include all applicable listed below.
1. Documentation:
 - a. Name of Project.
 - b. Name of entity proposing substitution.
 - c. Specification section name and number and paragraph number.
 - d. Drawing name and sheet number.
 - e. Name and description of proposed substitution including product data.
 - f. Itemized list of all deviations from specification requirements.
 - g. Itemized list of all changes or revisions needed to other parts of the Work and to any construction performed by the Owner or separate contractors for proper coordination with proposed substitution.
 - h. Include all necessary technical data to support substitution request.
 - i. Include samples if required to support substitution request.
 2. Architect/Engineer's Action: Architect/Engineer will issue substitution approval by addendum to all plan holders registered with the Architect/Engineer's office. Contractor/Construction Manager shall furnish and install products and materials specified unless prior approval for substitution has been approved before bidding by addendum or after bidding through substitution process outlined below.
- F. Substitution Requests After Bidding (**including the process of "value engineering" to reduce cost**): Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by the Owner or separate contractors for proper coordination with proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples if required to support substitution request.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES or applicable code organization.
 - j. Detailed comparison of construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of

construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

- k. Itemized cost information. Include a Change Order Proposal for changing the Contract Sum.
 - l. Contractor's/Construction Manager's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's/Construction Manager's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Architect/Engineer's Action: If necessary, Architect/Engineer will request additional information or documentation for evaluation within **seven** days of receipt of a request for substitution. Architect/Engineer will notify Contractor/Construction Manager of acceptance or rejection of proposed substitution within **15** days of receipt of request, or **seven** days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect/Engineer does not issue a decision on use of a proposed substitution within time allocated.

QUALITY ASSURANCE

- G. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

PROCEDURES

- H. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

SUBSTITUTIONS PRIOR TO BIDDING

- A. Product/Manufacturer Substitution Requests: Submit requests for approval of product manufacturer substitutions not later than **5** days prior to the bid date. Architect/Engineer will consider the request for product/manufacturer approval if all relevant information listed in Paragraph 1.4.A has been provided.

SUBSTITUTIONS AFTER BIDDING INCLUDING "VALUE ENGINEERING"

- B. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect/Engineer will consider Contractor's/Construction Manager's request for substitution(s), including requests for "**value engineering**" changes, when the following conditions are satisfied. If the following conditions are **not** satisfied, Architect/Engineer will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics that specified product provided.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides warranty equal to originally specified product or system.
 - i. Requested substitutions that result in an increase or decrease in the contract amount, including items on a "**value engineering**" list, shall be documented as specified in Section 01 26 00, "Contract Modification Procedures".
 - j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- C. Substitutions for Convenience by Contractor/Construction Manager: Not allowed.
- D. Substitutions for Convenience by Owner: Architect/Engineer will review Owner requests for substitution for code compliance at any time during the course of the Project. Architect/Engineer will issue a Change Order Proposal Request to the Contractor for adjustment of the Contract amount and Contract time, if any.

PART 3 - EXECUTION (Not Used)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 00 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after bidding and Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect/Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's Field Report or on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect/Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within at earliest possible date but in no case later than **15** days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor/Construction Manager-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor/Construction Manager may initiate a claim by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 01 21 00 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 01 22 00 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect/Engineer will issue a Change Order for signatures of Owner and Contractor/Construction Manager on **AIA Document G701**.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect/Engineer may issue a Construction Change Directive on **AIA Document G714**. Construction Change Directive instructs Contractor/Construction Manager to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

01 920 038

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 01 21 00 "Allowances" for procedural requirements governing the handling and processing of allowances.
 - 2. Section 01 22 00 "Unit Prices" for administrative requirements governing the use of unit prices.
 - 3. Section 01 26 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 4. Section 01 32 00 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the construction schedule.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's/Construction Manager's construction schedule.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in the construction schedule.
 - 2. Submit the schedule of values to Architect/Engineer at earliest possible date, but no later than **ten** days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
 - 4. Subschedules for Separate Design Contracts: Where the Owner has retained the Architect/Engineer under separate project contracts and Architect/engineer will provide separate payment certifications for each project, provide subschedules showing values coordinated with the scope of each design contract.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Arrange schedule of values consistent with format of **AIA Document G703**.
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents.
 - 3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site, if off-site storage has been approved by the Owner. Include evidence of insurance.
 - 4. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - 5. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
 - 6. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications as certified by Architect/Engineer and paid for by Owner.
- B. Payment Application Times: The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor/Construction Manager. Architect will return incomplete applications for correction, without action.
 - 1. Entries shall match data on the schedule of values and construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.

3. Include amounts of Change Orders and Construction Change Directives issued and/or approved before last day of construction period covered by application.
- D. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site, if off-site storage has been approved by the Owner.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- E. Transmittal: Submit **five** signed and notarized original copies of each Application for Payment to Architect/Engineer by a method ensuring receipt **within 48 hours**. One copy shall include waivers of lien and similar attachments if required.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 4. Owner reserves the right to designate which entities involved in the Work must submit waivers.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Construction schedule (preliminary if not final).
 4. Submittal schedule (preliminary if not final).
 5. List of Contractor's/Construction Manager's staff assignments.
 6. Copies of building permits, authorizations and licenses for performance of the Work.
 7. Initial progress report.
 8. Report of preconstruction conference.
 9. Certificates of insurance and insurance policies.
 10. Performance and payment bonds.
- H. Application for Payment at Substantial Completion: After Architect/Engineer issues the Certificate of Substantial Completion, submit an Application for Payment for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
- I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements including completion of all Punch List items.
 2. Receipt by Owner and Architect/Engineer of all required project construction records including As-Build Drawings.
 3. Removal of all temporary facilities, services, surplus materials and rubbish.
 4. Change-over of all door locks and other Contractor/Construction Manager access provisions to the Owner.
 5. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 6. Updated final statement, accounting for final changes to the Contract Sum.
 7. Receipt of conditional final lien waivers from all entities lawfully entitled to a lien.
 8. AIA Document G706A, "Contractor's/Construction Manager's Affidavit of Release of Liens."
 9. AIA Document G707, "Consent of Surety to Final Payment."

10. Receipt by Architect/Engineer of Statutory Affidavit (attached).
11. Receipt by Architect/Engineer of Contractor's/Construction Manager's Warranty (attached).
12. Receipt by Architect/Engineer of Roofing Guarantee (attached) and Roofing Weathertightness Warranty.
13. Evidence that claims have been settled.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00
01 920 038

STATUTORY AFFIDAVIT

State of Georgia, County of _____

From: _____

To: _____

Re: Contract entered into on the ____ day of _____, 20____, between the above mentioned parties for the construction of _____ at _____

KNOW ALL MEN BY THESE PRESENTS

1. The undersigned hereby certifies that all work required under the above contract has been performed in accordance with the terms thereof, that all materialmen, subcontractors, mechanics, and laborers have been paid and satisfied in full, and that there are no outstanding claims of any character arising out of the performance of the contract which have not been paid and satisfied in full.
2. The undersigned further certifies that to the best of his knowledge and belief there are no unsatisfied claims or damages resulting from injury or death of any employees, subcontractors, or the public at large arising out of this performance of the contract, or any suits or claims for any other damage of any kind, nature, or description which might constitute a lien upon the property of the Owner.
3. The undersigned makes this affidavit as provided by law and for the purpose of receiving final payment in full settlement of all claims arising under or by virtue of the contract, and acceptance of such payment is acknowledged as a release of the Owner from any and all claims arising under or by virtue of the contract.

IN WITNESS THEREOF, the undersigned has signed and sealed this instrument this ____ day of _____, 20____.

By: _____

Personally appeared before the undersigned, _____ and _____ who after being duly sworn, deposed(s) and say(s) that the fact stated in the above affidavit are true.

Notary Public

_____ County, Georgia

This ____ day of _____, 20____

My commission expires _____

**END OF SECTION 01 29 01
01 920 038**

WARRANTY BY GENERAL CONTRACTOR/CONSTRUCTION MANAGER

Owner: _____

Project Name: _____

Project Address: _____

County of: _____

State of: _____

Date: _____

_____, as Contractor/Construction Manager on the above construction project, do hereby guarantee that all work executed under the plans and specifications will be free from defects in materials and/or workmanship for a period of **one year** beginning on _____ and ending on _____, and that all defects occurring within the warranty period shall be replaced or repaired at no cost to the Owner.

This guarantee covers all work shown on the plans and specified in the Project Manual and Contract Documents.

Nothing in the above shall be deemed to imply that this guarantee shall apply to any work which has been abused or neglected by the Owner.

Legal Name of Contractor/Construction Manager:

By: _____

Title: _____

Notary Public

This ____ day of _____, 20____

END OF SECTION 01 29 02
01 920 038

ROOFING GUARANTEE

Project Name _____

Location _____

Owner's Name _____

General Contractor/Construction Manager _____

Address _____

Date of Acceptance _____ Date of Expiration _____

1. The General Contractor/Construction Manager does hereby certify that the roofing work included in this contract was installed in strict accordance with all requirements of the plans and specifications and in accordance with approved roofing manufacturer's recommendations.
2. The General Contractor/Construction Manager does hereby guarantee the roofing and associated work including but not limited to all flashing and counter flashing both composition and metal; roof decking and/or sheathing; all materials used as roof substrate or insulation over which roof is applied; promenade decks or any other work on the surface of the roof; metal work; gravel stops and roof expansion joints to be absolutely watertight and free from all leaks, due to faulty or defective materials and workmanship for a period of five (5) years, starting on the date of substantial completion of the project(s). This guarantee does not include liability for damage to interior contents of the building due to roof leaks, nor does it extend to any deficiency which was caused by the failure of work which the General Contractor/Construction Manager did not damage or did not accomplish or was not charged to accomplish.
3. Subject to the terms and conditions listed below, the General Contractor/Construction Manager also guarantees that during the Guarantee Period he will, at his own cost and expense, make or cause to be made such repairs to, or replacement of, said work in accordance with the roofing manufacturer's recommendations as are necessary to correct faulty and defective work and/or materials which may develop in the work including but not limited to: blisters, delamination, exposed felts, ridges, wrinkles, splits, warped insulation and/or loose flashing etc. in a manner pursuant to the total anticipated life of the roofing system and the best standards applicable to the particular roof type in value and in accordance with construction documents as are necessary to maintain said work in watertight conditions. And further, to respond on or within three (3) calendar days upon proper notification of leaks or defects by the Owner or Architect.
4. Specifically excluded from this Guarantee are damages to the work, other parts of the building and building contents caused by: 1) lightning, windstorm, hailstorm and other unusual phenomena of the elements, and 2) fire. When the Work has been damaged by any of the foregoing causes, the Guarantee shall be null and void until such damage has been repaired by the General Contractor/Construction Manager, and until the cost and expense thereof has been paid by the Owner or by the responsible party so designated.
5. During the Guarantee Period, if the Owner allows alterations to the Work by anyone other than the General Contractor/Construction Manager, including cutting, patching and maintenance in connection with penetrations, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alteration. If the Owner engages the General Contractor/Construction Manager to perform said alterations, the Guarantee shall not become null and void, unless the General Contractor/Construction Manager, prior to proceeding with said alterations, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the Work, thereby reasonably justifying a termination of this Guarantee.
6. Future building additions will not void this guarantee, except for that portion of the future addition that might affect the Work under this contract at the point of connection of the roof areas, and any damage caused by such addition. If this contract is for roofing of an addition to an existing building, then this guarantee covers the work involved at the point of connection with the existing roof.
7. During the Guarantee Period, if the original use of the roof is changed and it becomes used for, but was not originally specified for a promenade, work deck, spray cooled surface, flooded basin, or other use or service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
8. The Owner shall promptly notify the General Contractor/Construction Manager of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for the General Contractor/Construction Manager to inspect the Work, and to examine the evidence of such leaks, defects or deterioration.

IN WITNESS THEREOF, this instrument has been duly executed this ____ day of _____, 20 ____.

General Contractor's/Construction Manager's Authorized Signature

Type or Print Name and Title

END OF SECTION 01 29 03

01 920 038

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. Requests for Information (RFIs).
 - 4. Project Web site.
 - 5. Project meetings.
- B. Related Requirements:
 - 1. Section 01 32 00 "Construction Progress Documentation" for preparing and submitting construction schedule.
 - 2. Section 01 73 00 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 01 77 00 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: At least **seven** days prior to starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 - 1. Post copies of list in project meeting room, in temporary field office. Keep list current at all times.

1.4 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.5 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.

- c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
- d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
- e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
- f. Indicate required installation sequences.
- g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor/Construction Manager shall prepare and submit an RFI containing information listed below.
 1. Architect/Engineer will return RFIs submitted to Architect/Engineer by other entities controlled by Contractor/Construction Manager with no response.
 2. Coordinate and submit RFIs promptly to avoid delays in the Work.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name and Architect's project number.
 2. Date.
 3. Name of Contractor/Construction Manager.
 4. RFI number, numbered sequentially.
 5. Specification Section number and title and related paragraphs, as appropriate.
 6. Drawing number and detail references, as appropriate.
 7. Field dimensions and conditions, as appropriate.
 8. Contractor's/Construction Manager's suggested resolution. If suggested resolution impacts the Contract Time or the Contract Sum, state impact in the RFI.
 9. Contractor's/ Construction Manager's signature.
 10. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. Architect/Engineer's Action: Architect/Engineer will review each RFI, determine action required, and respond. Allow **seven** working days for Architect/Engineer's response for each RFI. RFIs received by Architect/Engineer after 1:00 p.m. will be considered as received the following working day.
 1. The following Contractor/Construction Manager generated RFIs will be returned without action:
 - a. Requests for approval of submittals or substitutions.
 - b. Requests for approval of Contractor's/Construction Manager's means and methods.
 - c. Requests for coordination information already shown in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect/Engineer's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect/Engineer's action may include a request for additional information, in which case Architect/Engineer's time for response will date from time of receipt of additional information.
 3. Architect/Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 26 00 "Contract Modification Procedures."
 - a. If Contractor/Construction Manager believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect/Engineer in writing within **10** days of receipt of response.
- D. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log **weekly**. Include the following:
 1. Project name.
 2. Name and address of Contractor/Construction Manager.
 3. RFI number including RFIs that were returned without action or withdrawn.
 4. RFI description.
 5. Date the RFI was submitted.
 6. Date Architect/Engineer's response was received.
- E. On receipt of Architect/Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect/Engineer within **seven** days if Contractor/Construction Manager disagrees with response.

1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site.
1. Attendees: Inform Owner and Architect and other participants whose presence is required, of date and time of each meeting.
 2. Agenda: Prepare and distribute the agenda to all invited attendees.
 3. Minutes: Record all discussions and agreements. Distribute the meeting minutes to everyone concerned, including Owner and Architect/Engineer, within three days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect/Engineer, but no later than **10** days after execution of the Agreement.
1. Attendees: Authorized representatives of Owner, Architect/Engineer, and their consultants; General Contractor/Construction Manager and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Preparation of record documents including As-Built Drawings.
 - m. Use of the premises.
 - n. Work restrictions.
 - o. Working hours.
 - p. Owner's occupancy requirements.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for moisture and mold control.
 - s. Procedures for disruptions and shutdowns.
 - t. Construction waste management and recycling.
 - u. Office, work, and storage areas.
 - v. Equipment deliveries and priorities.
 - w. First aid.
 - x. Security.
 - y. Progress cleaning.
- C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Owner and Architect/Engineer of scheduled meeting dates.
 2. Review progress of other construction activities and preparations for the particular activity under consideration.
 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at weekly intervals.
1. Attendees: Representatives of Owner, Architect/Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress of the Work.
 2. Agenda: Review minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's/Construction Manager's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's/Construction Manager's construction 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.
- b. Review present and future needs of each entity present that are required to insure completion of each entity's portion of the Work on schedule.
3. Minutes: Record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

01 920 038

PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Construction schedule.
 - 2. Construction schedule updating reports.
 - 3. Daily construction reports.
 - 4. Material location reports.
 - 5. Site condition reports.
 - 6. Special reports.
- B. Related Requirements:
 - 1. Section 01 33 00 "Submittal Procedures" for submitting schedules and reports.
 - 2. Section 01 40 00 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.

1.4 INFORMATIONAL SUBMITTALS

- A. Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- B. Construction Schedule Updating Reports: Submit with Applications for Payment.
- C. Daily Construction Reports: Submit at weekly intervals.
- D. Special Reports: Submit at time of unusual event.

1.5 QUALITY ASSURANCE

- A. Scheduler's Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams.

1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS**2.1 CONSTRUCTION SCHEDULE, GENERAL**

- A. Time Frame: Extend schedule from date established for the Notice of Award or the Notice to Proceed to date of final completion.
- B. Activities: Treat each building wing, story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities in the shortest practicable time segments.
 - 2. Procurement Activities: Include procurement process activities for long lead time items and all major items of the Work.
 - 3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00 "Submittal Procedures" in schedule. Coordinate submittal review times in construction schedule with submittal schedule.
 - 4. Startup and Testing Time: Include sufficient days for startup and testing.
 - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect/Engineer's administrative procedures necessary for certification of Substantial Completion.
 - 6. Punch List and Final Completion: Include not more than 45 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
 - 1. Phasing: Arrange list of activities on schedule by phase.
 - 2. Work under More Than One Contract: Include a separate activity for each contract.

3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date.
 6. Work Restrictions: Show the effect of the work restrictions itemized in 01 10 00 "Summary".
 7. Work Stages: Indicate stages of construction for each major portion of the Work.
 8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities.
- D. Milestones: Include milestones in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
- E. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
1. See Section 01 29 00 "Payment Procedures" for cost reporting and payment procedures.
- F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor/Construction Manager intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
- 2.2 CONSTRUCTION SCHEDULE (GANTT CHART)
- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, construction schedule within 14 days of date established for commencement of the Work. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.
- C. General: Prepare network diagrams using AON (activity-on-node) format.
- D. Startup Network Diagram: Submit diagram within 14 days of date established for commencement of the Work. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- 2.3 REPORTS
- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.
 4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions.
 7. Accidents.
 8. Meetings and significant decisions.
 9. Unusual events (see special reports).
 10. Stoppages, delays, shortages, and losses.
 11. Meter readings and similar recordings.
 12. Emergency procedures.
 13. Orders and requests of authorities having jurisdiction.
 14. Change Orders received and implemented.
 15. Construction Change Directives received and implemented.
 16. Services connected and disconnected.
 17. Equipment or system tests and startups.
 18. Partial completions and occupancies.
 19. Substantial Completions authorized.
- B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- 2.4 SPECIAL REPORTS
- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site prepare and submit a special report. List chain of events, persons participating, response by Contractor's/Construction

Manager's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONSTRUCTION SCHEDULE

- A. Scheduling Consultant: Employ experienced personnel to provide planning, evaluation, and reporting using Gantt chart.
- B. Construction Schedule Updating: Update schedule monthly to reflect actual construction progress. Issue schedule one week before regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate final completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Architect/Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations.

END OF SECTION 01 32 00

01 920 038

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
 - 1. Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Section 01 32 00 "Construction Progress Documentation" for submitting schedules and reports, including construction schedule.
 - 3. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 4. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect/Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect/Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

- A. Submit a schedule of submittals electronically, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect/Engineer and additional time for handling and reviewing submittals required by those corrections.
 - 1. Submit concurrently with the first complete submittal of construction schedule.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's/Engineer's Digital Data Files: Discipline specific electronic digital data files of certain Drawings will be provided by Architect/Engineer for use in preparing submittals as follows:
 - 1. Civil/Site: No files will be provided.
 - 2. Architectural: Architectural floor plans and reflected ceiling plans showing walls, doors, windows and fixed equipment.
 - 3. Structural: No files will be provided.
 - 4. Fire Protection: Architectural floor plans and reflected ceiling plans
 - 5. Mechanical: Architectural floor plans and reflected ceiling plans.
 - 6. Electrical: Architectural floor plans and reflected ceiling plans.
 - 7. Food Service: Kitchen floor plan with equipment layout.
 - a. Architect/Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
- B. Coordination: Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 1. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are approved in advance.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect/Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow **15** days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect/Engineer will advise Contractor/Construction Manager when a submittal being processed must be delayed for coordination.
 - 2. Resubmittal Review: Allow **15** days for review of each resubmittal.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 - 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.

2. Provide means for insertion to permanently record Contractor's/Construction Manager's review and electronic approval markings and action taken by Architect/Engineer.
 3. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name of Contractor/Construction Manager.
 - d. Name of firm or entity that prepared submittal.
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Specification Section number and title.
 - g. Drawing number and detail references, as appropriate.
 - h. Location(s) where product is to be installed, as appropriate.
 - i. Related physical samples submitted directly.
 4. Metadata: Include the following information as keywords in the electronic submittal file metadata:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- E. Options: Identify options requiring selection by Architect/Engineer.
- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's/Construction Manager's letterhead, record relevant information, requests for data, revisions other than those requested by Architect/Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval or approved as noted notation from Architect/Engineer's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval or approved as noted notation from Architect/Engineer's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit all submittals required by individual Specification Sections to Contractor/Construction Manager.
1. Submit electronic submittals via email as PDF electronic files.
 - a. Architect/Engineer will return annotated file. Annotate and retain copy of file as an electronic Project record document file.
 2. Action Submittals: Submit electronic copy of each submittal required by the individual specification section. Architect/Engineer will retain two copies and will return all remaining copies.
 - a. Samples: In addition to electronic submittal of material and color samples, transmit actual samples for selection of color, texture and pattern.
 3. Informational Submittals: Submit electronic copy of each submittal.
 4. Certificates and Certifications Submittals: Provide a notarized statement on original paper copy certificates that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Digital signatures are not acceptable for certificates and certifications.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. Mark each copy of each submittal to show which products and options are applicable.
 2. Include catalog cuts, product specifications, color charts, statement of compliance with specified referenced standards, test reports, application of testing agency labels and seals and coordination requirements.
 3. For equipment, also include wiring diagrams showing factory-installed wiring, printed performance curves, operational range diagrams and clearances required to other construction, if not indicated on accompanying Shop Drawings.
 4. Submit Product Data in the following format:
 - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include identification of products, schedules, compliance with specified standards, coordination requirements, dimensions established by field measurement, relationship and attachment to adjoining construction and seal and signature of professional engineer if specified.
 - D. Samples: Submit actual physical units or sections of material for review of kind, color, pattern, and texture and for coordination of these characteristics with other elements
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will retain submittal for use in preparation of color boards.
 5. Samples for Verification: Submit full-size units or Samples prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected.
 - a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - b. If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit sufficient number of units for verification.
 - E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
 - F. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
 - G. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 - H. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 - I. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
 - J. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 - K. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
 - L. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
 - M. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
 - N. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- 2.2 DELEGATED-DESIGN SERVICES
- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor/Construction Manager by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect/Engineer.
 - B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required electronic submittals, submit two paper copies of certificate, signed and sealed by the responsible design

professional, for each product and system specifically assigned to Contractor/Construction Manager to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR/CONSTRUCTION MANAGER REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with electronic approval stamp before submitting to Architect/Engineer.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 77 00 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, electronic approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's/Construction Manager's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S/ENGINEER'S ACTION

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

3.3 SUBMITTAL SCHEDULE

1. 01 21 00 ALLOWANCES
 - a. Action Submittals
 - 1) Proposals
 - b. Informational Submittals
 - 1) Invoices
 - 2) Time Sheets
2. 01 25 00 SUBSTITUTION PROCEDURES
 - a. Informational Submittals
 - 1) Subcontractor List
 - 2) Key Personnel
3. 01 31 00 PROJECT MANAGEMENT AND COORDINATION
 - a. Informational Submittals
 - 1) Subcontractor List
 - 2) Key Personnel
4. 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
 - a. Informational Submittals
 - 1) Initial Construction Schedule
 - 2) Construction Schedule Updates
 - 3) Daily Construction Reports
 - 4) Special Reports
5. 01 40 00 QUALITY REQUIREMENTS
 - a. Informational Submittals
 - 1) Quality Control Plan
 - 2) Qualification Data
 - 3) Testing Agency Qualification
6. 01 60 00 PRODUCT REQUIREMENTS
 - a. Action Submittals
 - 1) Basis-of-Design Product Submittals
7. 01 77 00 CLOSEOUT PROCEDURES
 - a. Action Submittals
 - 1) Contractor's List of Incomplete Items
 - 2) Certified List of Incomplete Items
8. 06 10 53 MISCELLANEOUS ROUGH CARPENTRY
 - a. Informational Submittals
 - 1) ICC-ES Evaluation Report for Fire Retardant Treated Wood

9. 07 54 23 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING
 - a. Action Submittals
 - 1) Product Data
 - 2) Shop Drawings
 - b. Informational Submittals
 - 1) Qualification Data for Installer
 - 2) Manufacturer Certificates
 - 3) Sample Warranty
10. 07 62 00 SHEET METAL FLASHING AND TRIM
 - a. Action Submittals
 - 1) Product Data
 - 2) Shop Drawings
 - 3) Samples
11. 07 71 00 ROOF SPECIALTIES
 - a. Action Submittals
 - 1) Product Data
 - 2) Shop Drawings
 - 3) Samples
 - b. Informational Submittals
 - 1) Sample Warranty
12. 07 92 00 JOINT SEALANTS
 - a. Action Submittals
 - 1) Product Data
 - 2) Samples

END OF SECTION 01 33 00
01 920 038

PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor/Construction Manager of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests and inspections do not limit Contractor's/Construction Manager's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor/Construction Manager to provide quality-assurance and quality-control services required by Architect/Engineer, Owner or authorities having jurisdiction are not limited by provisions of this Section.

- C. Related Requirements:

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect/Engineer.
- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- F. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and they establish different or conflicting requirements, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect/Engineer for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's/Construction Manager's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's/Construction Manager's quality-control personnel.
- C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.6 CONTRACTOR'S/CONSTRUCTION MANAGER'S QUALITY-CONTROL PLAN

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

2. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect/Engineer has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sampling, testing and inspecting.
11. Professional's opinion on whether Work complies with the Contract Documents.
12. Name and signature of tester or inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

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

1.8 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.
- F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products indicated for this Project.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are indicated for this Project.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect/Engineer.
 - 2. Notify Architect/Engineer seven days prior to mockups being constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Architect/Engineer's and Owners approval of mockups before starting work.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 6. Demolish and remove mockups when directed unless otherwise indicated.

1.9 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor/Construction Manager and the Contract Sum will be adjusted by Change Order.
- B. Contractor/Construction Manager Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's/Construction Manager's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements and those required by authorities having jurisdiction, whether specified or not.
 - 1. Engage a qualified testing agency to perform these quality-control services.
 - 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 - 3. Submit a certified written report, in duplicate, of each quality-control service.
 - 4. Testing and inspecting requested by Contractor/Construction Manager and not required by the Contract Documents are Contractor's/Construction Manager's responsibility.
 - 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's/Construction Manager's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Architect/Engineer and Contractor/Construction Manager in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect/Engineer and Contractor/Construction Manager promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of material samples for testing and inspecting.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Preliminary design mix proposed for use for materials that require control testing.
 - 6. Security and protection for samples and for testing and inspecting equipment.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

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

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's/Construction Manager's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00
01 920 038

PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 01 10 00 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum. Allow other entities including Owner, Architect, testing agencies and authorities having jurisdiction to use temporary services and facilities without cost.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- D. Electric Service: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities", NEMA, NFPA 70 and 241 and UL standards and regulations for temporary electric service.
- E. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.4 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS**2.1 MATERIALS****2.2 TEMPORARY FACILITIES**

- A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment specified to be kept in dry locations.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures. Comply with NFPA 10 and NFPA 241.
- B. Self-Contained Toilets: Single occupant units vented and fully enclosed with fiber glass reinforced polyester shell or similar nonabsorbent material.
- C. Drinking Water: Provide containerized or bottled water units, including paper cup supply.
- D. Electrical Outlets: Provide properly configured, NEMA-polarized outlets equipped with ground fault circuit interrupters, reset buttons and pilot lights.

PART 3 - EXECUTION**3.1 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities. Change from temporary service to permanent service at earliest possible date.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate utility company to install temporary or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction.
- B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use by construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- D. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Provide construction for temporary offices, shops, and sheds located within construction area noncombustible according to ASTM E 136. Comply with NFPA 241.
 - 1. Maintain support facilities Architect schedules Substantial Completion inspection. Remove before Substantial Completion.
 - B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
 - C. Project Identification Signs: Provide two-sided Project identification signs as indicated. Do not permit installation of unauthorized signs.
 - 1. Temporary Signs: Provide temporary directional signs for visitors.
 - D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 "Execution."
- 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION
- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
 - B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations.
- 3.5 MOISTURE AND MOLD CONTROL
- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
 - B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - C. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
 - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 - 2. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for **48** hours are considered defective.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for **48** hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove materials that cannot be completely restored to their manufactured moisture level within **48** hours.
- 3.6 OPERATION, TERMINATION, AND REMOVAL
- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
 - B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Keep temporary services and facilities neat, clean and in good working order.
 - 2. Relocate temporary services and facilities as required by progress of the Work.
 - 3. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 - C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
 - D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 01 25 00 "Substitution Procedures" for requests for substitutions.

1.3 DEFINITIONS

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

1.4 ACTION SUBMITTALS

- A. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

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

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

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

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor/Construction Manager of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 - 1. Asbestos containing materials or products **are not** allowed on the Project site and **shall not** be incorporated into the Work.
 - 2. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 3. Standard Products: Unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 4. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 5. Where products are accompanied by the term "as selected," Owner and Architect will make selection.
 - 6. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 - 7. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in Section 01 25 00 for product substitution after bidding.
- B. Product Selection Procedures:
 - 1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's/Construction Manager's convenience will not be considered.
 - 2. Restricted List Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements.
 - 3. Restricted List Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 - 4. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in Section 01 25 00 for product substitution after bidding.
- C. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

01 920 038

PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 1. Installation of the Work.
 2. Cutting and patching.
 3. Progress cleaning.
 4. Protection of installed construction.
 5. Correction of the Work.

1.3 INFORMATIONAL SUBMITTALS

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

1.4 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 1. Structural Elements: When cutting and patching structural elements, notify Architect/Engineer of locations and details of cutting and await directions before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
 2. 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 results in increased maintenance or decreased operational life or safety.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or results in increased maintenance or decreased operational life or safety.
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Owner's or Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match adjacent surfaces to the fullest extent possible.
 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match that is visually and functionally acceptable to Architect

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present, for compliance with installation requirements. Record observations.
 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- B. Written Report: Report conditions detrimental to performance of the Work in writing identifying detrimental conditions, unacceptable installation tolerances and recommended corrections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. Field Measurements: Take field measurements and recheck as required to fit the Work properly. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions, submit a request for information to Architect according to requirements in Section 01 31 00 "Project Management and Coordination."
- E. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Install components to maximize space available for maintenance and ease of replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect/Engineer.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
- K. Incorporation of ACM's (asbestos containing materials) into the Work is **not** allowed.

3.4 CUTTING AND PATCHING

- 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. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. 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.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 10 00 "Summary."
- F. 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 or prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction using methods least likely to damage elements retained or adjoining construction.

1. In general, use tools designed for sawing and grinding, not hammering and chopping. Neatly cut holes to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Cut concrete and masonry using cutting machines designed for that purpose.
 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 5. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections.
1. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 2. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 3. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 3. Coordinate progress cleaning among all entities working concurrently at project site.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area as necessary and appropriate for work being installed.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in other 01 Sections.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

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

END OF SECTION 01 73 00
01 920 030

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout.
- B. Related Requirements:

1. Section 01 73 00 "Execution" for progress cleaning of Project site.
2. Section 01 78 23 "Operation and Maintenance Data".
3. Section 01 78 39 "Project Record Documents".

1.3 ACTION SUBMITTALS

- A. Contractor's/Construction Manager's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's/Construction Manager's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's/Construction Manager's punch list).
- B. Submittals Prior to Substantial Completion: Complete the following before requesting inspection for determining date of Substantial Completion.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to Owner. Label with manufacturer's name and model number where applicable.
5. Submit test/adjust/balance records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

- C. Procedures Prior to Substantial Completion: Complete the following before requesting inspection for determining date of Substantial Completion.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
6. Advise Owner of changeover in utilities.
7. Terminate and remove temporary facilities from Project site.
8. Complete final cleaning requirements, including touchup painting.
9. Touch up, repair and restore marred exposed finishes to eliminate visual defects.

- D. Inspection: Submit a written request for inspection. Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor/Construction Manager of items that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.5 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection complete the following:

1. Submit a final Application for Payment according to Section 01 29 00.
2. Submit certified copy of Architect's Substantial Completion punch list, endorsed and dated by Architect. Certified copy shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit pest-control final inspection report and warranty.

- B. Inspection: Submit a written request for final inspection. Architect will either proceed with inspection or notify Contractor/Construction Manager of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor/Construction Manager of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections is completed or corrected.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Identify each space and area containing items needing correction including areas disturbed by Contractor/Construction Manager that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first.
 - 2. Submit list of incomplete items to the Architect in the following format:
 - a. PDF electronic file. Architect will return annotated file.

1.7 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit two copies of written warranties to Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty. Verify that all warranties requiring signatures by the Owner or contractor have been completed.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor/Construction Manager.
- C. Organize warranties into an orderly sequence based on the table of contents of Project Manual.
 - 1. Bind warranties in heavy-duty, three-ring binders.
 - 2. Provide dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - 4. At the upper right hand corner of each sheet, include the specification number that the warranty applies to and a description of what is covered by the warranty.
 - 5. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document. Submit all electronic copies on a minimum 4G flash drive.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials recommended by manufacturer of the surface to be cleaned.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local, state and federal laws and ordinances.
- B. Cleaning: Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions. Complete the following cleaning operations:
 - a. Clean site of rubbish, waste material and litter.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains.
 - c. Remove tools, equipment, machinery, and surplus material from site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.
 - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - f. Remove labels that are not permanent.
 - g. Wipe surfaces of mechanical and electrical equipment and similar equipment.
 - h. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls." and Section 01 74 19 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.

- a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

3.3 CLOSEOUT SUBMITTAL SCHEDULE

1. 01 78 23 OPERATIONS AND MAINTENANCE DATA
 - a. Operations Manuals
 - b. Product Maintenance Manuals
 - c. Systems and Equipment Maintenance Manuals
2. 01 78 39 PROJECT RECORD DOCUMENTS
 - a. Record Drawings
 - b. Record Specifications
 - c. Miscellaneous Record Submittals
 - d. Weekly Reports
3. 07 54 23 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING
 - a. Maintenance Data
 - b. Manufacturers warranty (20 years)
 - c. Installers warranty (2 years)
4. 07 71 00 ROOF SPECIALTIES
 - a. Warranty (20 years)

END OF SECTION 01 77 00

01 920 038

PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals.
- B. Related Requirements:
 - 1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
 - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
 - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked directory.
 - b. Enable inserted reviewer Comments on draft submittals.
 - 2. Three (3) paper copies. Include a complete operation and maintenance directory.
- C. Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
 - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS**2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY**

- A. Directory: Prepare a comprehensive directory of operation, and maintenance data and materials, listing items and their location to facilitate ready access to information. Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.
 - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR OPERATION, AND MAINTENANCE MANUALS

- A. Organization: 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.
- B. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment.
- C. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 - 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and

table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel when open.

- D. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring binders, of necessary size for holding 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. 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.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
 4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
 1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
1. Do not use original record documents as part of operation and maintenance manuals.
 2. Comply with requirements of newly prepared record Drawings in Section 01 78 39 "Project Record Documents."
- F. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

01 920 038

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 01 77 00 "Closeout Procedures" for general closeout procedures.
 - 2. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Submit one set of marked-up record drawings and one copy of annotated PDF electronic files of record drawings.
- B. Record Specifications: Submit one paper copy and one copy of annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one paper copy and one copy of annotated PDF electronic files and directories of each submittal.
- D. Reports: Submit written report **weekly** indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately and neatly record information with dimensions where appropriate.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 - 3. Mark the Contract Drawings and Shop Drawings completely and accurately.
 - 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
 - 1. Format: Unless specified otherwise, format as annotated PDF electronic file with comment function enabled.
 - 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 - 3. Refer instances of uncertainty to Architect for resolution.
 - 4. Architect will furnish Contractor/Construction Manager one set of digital data files of the Contract Drawings for use in recording information.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Format: Unless otherwise specified, format as annotated PDF electronic file with comment function enabled.
 - 2. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as paper copy and as scanned PDF electronic file(s) of marked-up paper copy of Specifications.

2.3 MISCELLANEOUS RECORD SUBMITTALS

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

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 01 78 39

01 920 038

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 building or structure.
- B. Related Requirements:
 - 1. Section 01 10 00 "Summary" for restrictions on the use of the premises.
 - 2. Section 01 73 00 "Execution" for cutting and patching procedures.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor/Construction Manager.
- B. Historic items and similar objects including cornerstones, commemorative plaques and other items of interest or value uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
- C. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.5 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

1.6 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
 - 1. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.7 WARRANTY

- A. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

PART 2 - PRODUCTS**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. If available, review record documents of existing construction. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. Notify the Owner and Architect/Engineer when unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered.
- E. As Work progresses perform survey of building condition to determine whether removing any element might result in structural deficiency of any portion of structure or adjacent structures.
- F. Photograph existing conditions to record the condition of items to be removed and salvaged.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Coordinate with Owner and arrange to shut off indicated services/systems.

2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

3.3 PREPARATION

- A. 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."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 50 00 "Temporary Facilities and Controls."

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. 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.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. Maintain adequate ventilation when using cutting torches.
 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 8. Dispose of demolished items and materials promptly.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Roofing: Remove existing metal gutters and downspouts only.
 1. Remove any damaged or deteriorated wood nailers after approval by the owner.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them. Do not allow demolished materials to accumulate on-site.
 1. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 2. Comply with requirements specified in Section 01 74 19 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.

3.7 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.

END OF SECTION 02 41 19
01 920 038

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. Framing with dimension lumber.
 2. Rooftop equipment bases and support curbs.
 3. Wood blocking, cants and nailers.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of **2 inches nominal (38 mm actual)** or greater but less than **5 inches nominal (114 mm actual)** in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 2. NHLA: National Hardwood Lumber Association.
 3. NLGA: National Lumber Grades Authority.
 4. SPIB: The Southern Pine Inspection Bureau.

1.4 ACTION SUBMITTALS

1.5 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:
 1. Fire-retardant-treated wood.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. 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. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 4. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
- 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.
 3. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than **10.5 feet (3.2 m)** beyond the centerline of the burners at any time during the test.
 - 1. Use treatment that does not promote corrosion of metal fasteners.
 - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 - 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
 - 4. Design Value Adjustment Factors: Treated lumber shall be tested according ASTM D 5664, and design value adjustment factors shall be calculated according to ASTM D 6841.
 - C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
 - D. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
 - E. Application: Treat framing for raised platforms, electrical and telephone backing panels and other items indicated on Drawings.
- 2.4 DIMENSION LUMBER FRAMING
- A. Framing: Standard or No. 3 grade and the following species:
 - 1. Mixed southern pine; SPIB.
 - 2. Spruce-pine-fir; NLGA.
 - 3. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- 2.5 MISCELLANEOUS LUMBER
- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including blocking, nailers, equipment bases and support curbs, cants, furring and grounds.
 - B. For items of dimension lumber size, provide Standard or No. 3 grade lumber and the following species:
 - 1. Mixed southern pine; SPIB.
 - 2. Spruce-pine-fir; NLGA.
 - 3. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
 - 4. Eastern softwoods; NeLMA.
 - C. 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.
 - D. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.
- 2.6 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, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
 - B. Nails, Brads, and Staples: ASTM F 1667.
 - C. Power-Driven Fasteners: NES NER-272.
 - D. Wood Screws: ASME B18.6.1.
 - E. Screws for Fastening to Metal Framing: ASTM C 1002 for non-load bearing framing and ASTM C 954 for cold formed metal framing, length as recommended by screw manufacturer for material being fastened.
 - F. Lag Bolts: **ASME B18.2.1 (ASME B18.2.3.8M)**.
 - G. Bolts: Steel bolts complying with **ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6)**; with **ASTM A 563 (ASTM A 563M)** 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 E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material for interior locations: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material for exterior locations: Stainless steel with bolts and nuts complying with **ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4)**.
- 2.7 MISCELLANEOUS MATERIALS
- A. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
 - B. Flexible Flashing for Separating Treated Wood from Metal Decking: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene

film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than **0.025 inch (0.6 mm)**.

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. Where wood-preserved-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- C. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- D. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view. Coordinate locations with utilities requiring backing panels.
- E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- F. 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.
- G. 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.
- H. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

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

3.3 PROTECTION

- A. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 10 53

01 920 038

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 thermoplastic polyolefin (TPO) roofing system.

- B. Related Requirements:

- 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 flashings and counterflashing's.
 - 3. Section 07 92 00 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.4 PREINSTALLATION MEETINGS

- A. 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 affects 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.

1.5 ACTION SUBMITTALS

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

- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:

- 1. Base flashings and membrane terminations.
 - 2. Roof plan showing orientation of steel roof deck and orientation of roofing, fastening spacings, and patterns for mechanically fastened roofing.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

- B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

- 1. Submit evidence of compliance with performance requirements.

- C. Sample Warranties: For manufacturer's special warranties.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

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. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.10 FIELD 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 roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
- B. Special warranty includes roofing, base flashings, roof insulation, fasteners, cover boards, substrate board, roofing accessories, and other components of roofing system. The special warranty shall also include wind damage for wind gusts up to one hundred miles per hour.
 - 1. Warranty Period: Twenty (20) years from date of Substantial Completion.
- C. 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 roofing system such as 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 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. [Carlisle SynTec Incorporated.](#)
 - 2. [Custom Seal Roofing.](#)
 - 3. [Elevate by Holcim.](#)
 - 4. [GAF Materials Corporation.](#)
 - 5. [GenFlex Roofing Systems.](#)
 - 6. [Johns Manville.](#)
 - 7. [Mule-Hide Products Co., Inc.](#)
 - 8. [Versico Incorporated.](#)
- B. Source Limitations: Obtain components including roof insulation and fasteners for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed 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. Roofing and base flashings shall remain watertight.
 - 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
 - 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Refer to the Structural Drawings for design wind pressures for corner, perimeter and field zones for roof components per latest edition of IBC and ASCE 7. Tested by a qualified testing agency to resist the following uplift pressures:
- D. Energy Star Listing: Roofing system shall be listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.
- E. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- F. Fire-Resistance Ratings: Where fire resistant roof assemblies are indicated, comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.3 TPO ROOFING

- A. Fabric-Reinforced TPO Sheet: ASTM D 6878, internally fabric- or scrim-reinforced, uniform, flexible TPO sheet.
 - 1. Thickness: 60 **mils (1.5 mm)**, nominal.
 - 2. Exposed Face Color: **White**.

2.4 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
 - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
 - 2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:
 - a. Plastic Foam Adhesives: 50 g/L.
 - b. Gypsum Board and Panel Adhesives: 50 g/L.
 - c. Multipurpose Construction Adhesives: 70 g/L.
 - d. Fiberglass Adhesives: 80 g/L.

- e. Single-Ply Roof Membrane Adhesives: 250 g/L.
 - f. Single-Ply Roof Membrane Sealants: 450 g/L.
 - g. Nonmembrane Roof Sealants: 300 g/L.
 - h. Sealant Primers for Nonporous Substrates: 250 g/L.
 - i. Sealant Primers for Porous Substrates: 775 g/L.
 - j. Other Adhesives and Sealants: 250 g/L.
- B. Sheet Flashing: Manufacturer's standard unreinforced TPO sheet flashing, **55 mils (1.4 mm)** thick, minimum, of same color as TPO sheet.
 - C. Bonding Adhesive: Manufacturer's standard.
 - D. Slip Sheet: If required by roofing system manufacturer, provide manufacturer's standard, of thickness required for application.
 - E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately **1 by 1/8 inch (25 by 3 mm)** thick; with anchors.
 - 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.
- 2.5 WALKWAYS
- A. Flexible Walkways: Where shown, provide factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads, approximately **3/16 inch (5 mm)** thick and acceptable to roofing system manufacturer.
 - 1. Size: 2 feet by 2 feet.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
 - 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and 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 Section 05 31 00 "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.

3.3 ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions.
- B. 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.
- C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to not void warranty for existing roofing system.

3.4 ADHERED ROOFING INSTALLATION

- A. Adhere roofing over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing and allow to relax before retaining.
- B. Accurately align roofing, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- C. Bonding Adhesive: Apply to substrate and underside of roofing at rate required by manufacturer, and allow to partially dry before installing roofing. Do not apply to splice area of roofing.
- D. In addition to adhering, mechanically fasten roofing securely at terminations, penetrations, and perimeter of roofing.
- E. Apply roofing with side laps shingled with slope of roof deck where possible.
- F. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of 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.
 - 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 do not comply with requirements.
- G. Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing in place with clamping ring.
- H. Where shown, install membrane roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to not void warranty for existing membrane roofing system.

3.5 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to 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.

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 roofing system where inspections indicate that they do not comply with specified requirements.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, 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 roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.9 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 1. Owner: <Insert name of Owner>.
 2. Address: <Insert address>.
 3. Building Name/Type: <Insert information>.
 4. Address: <Insert address>.
 5. Area of Work: <Insert information>.
 6. Acceptance Date: _____.
 7. Warranty Period: <Insert time>.
 8. Expiration Date: _____.
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding 100 miles per hour.
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

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

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

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

END OF SECTION 07 54 23

01 920 038

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. Formed roof penetration sheet metal fabrications.
- 2. Formed equipment support flashing.

- B. Related Requirements:

- 1. Section 06 10 53 "Rough Carpentry" for wood nailers, curbs, and blocking.

1.3 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 ACTION SUBMITTALS

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

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

- B. Shop Drawings: Include plans, elevations, sections, profiles, shapes, seams, dimensions attachment details and connections to adjoining work. Include details of all roof-penetration flashing.

- C. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes provide metal manufacturer's charts showing complete range of colors available.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

PART 2 - PRODUCTS**2.1 PERFORMANCE REQUIREMENTS**

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

- 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

- B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.

- 1. Exposed Coil-Coated Finish:

- a. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

- b. Color: As selected by Architect from manufacturer's full range.

- C. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet according to ASTM A 653/A 653M, G90 (Z275) coating designation or aluminum-zinc alloy-coated steel sheet according to ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation, Grade 40 (Grade 275); prepainted by coil-coating process to comply with ASTM A 755/A 755M.

- 1. Surface: Smooth, flat.

- 2. Exposed Coil-Coated Finish:

- a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
3. Color: As selected by Architect from manufacturer's full range.
4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of **0.5 mil (0.013 mm)**.

2.3 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.
- B. Self-Adhering, High-Temperature Sheet: Minimum **30 mils (0.76 mm)** thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.
 1. **Products:** Subject to compliance with requirements, provide one of the following:
 - a. [Carlisle Residential, a division of Carlisle Construction Materials](#); WIP 300HT.
 - b. [Grace Construction Products, a unit of W. R. Grace & Co.-Conn.](#); Grace Ice and Water Shield HT or Ultra.
 - c. [Henry Company](#); Blueskin PE200 HT.
 - d. [Metal-Fab Manufacturing, LLC](#); MetShield.
 - e. [Owens Corning](#); WeatherLock Specialty Tile & Metal Underlayment.
 - f. [Polyguard Products, Inc.](#); Deck Guard HT.
 - g. [Protecto Wrap Company](#); Protecto Jiffy Seal Ice & Water Guard HT.
 2. Thermal Stability: ASTM D 1970; stable after testing at **240 deg F (116 deg C)** or higher.
 3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus **20 deg F (29 deg C)** or lower.
- C. Slip Sheet: Rosin-sized building paper, **3 lb/100 sq. ft. (0.16 kg/sq. m)** minimum.

2.4 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners[, **solder**], protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal
 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
 - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
 3. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.
 4. Fasteners for Zinc Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.
- C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape **1/2 inch (13 mm)** wide and **1/8 inch (3 mm)** thick.
- D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane or silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- F. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.
- G. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.5 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 2. Obtain field measurements for accurate fit before shop fabrication.
 3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.

4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
 - B. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 1. Form expansion joints of intermeshing hooked flanges, not less than **1 inch (25 mm)** deep, filled with butyl sealant concealed within joints.
 - C. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
 - D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
 - E. Coated Aluminum and Steel Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
 - F. Uncoated Aluminum Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.
 - G. To prevent galvanic corrosion between graphite and aluminum, do not use graphite pencils to mark metal surfaces.
- 2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS
- A. Base Flashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:
 1. Aluminum: **0.040 inch (1.02 mm)** thick.
 2. Galvanized Steel: **0.028 inch (0.71 mm)** thick.
 3. Aluminum-Zinc Alloy-Coated Steel: **0.028 inch (0.71 mm)** thick.
 - B. Roof-Penetration Flashing: Fabricate from the following materials:
 1. Galvanized Steel: **0.028 inch (0.71 mm)** thick.
 2. Aluminum-Zinc Alloy-Coated Steel: **0.028 inch (0.71 mm)** thick.
- 2.7 MISCELLANEOUS SHEET METAL FABRICATIONS
- A. Equipment Support Flashing: Fabricate from the following materials:
 1. Galvanized Steel: **0.028 inch (0.71 mm)** thick.
 2. Aluminum-Zinc Alloy-Coated Steel: **0.028 inch (0.71 mm)** thick.
- PART 3 - EXECUTION
- 3.1 EXAMINATION
- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 2. Where shown, verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
 - B. Proceed with installation only after unsatisfactory conditions have been corrected.
- 3.2 UNDERLAYMENT INSTALLATION
- A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than **2 inches (50 mm)**.
 - B. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, according to manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.
 - C. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than **6 inches (150 mm)** staggered **24 inches (600 mm)** between courses. Overlap side edges not less than **3-1/2 inches (90 mm)**. Roll laps and edges with roller. Cover underlayment within 14 days.
 - D. Apply slip sheet, wrinkle free, directly on substrate before installing sheet metal flashing and trim.
- 3.3 INSTALLATION, GENERAL
- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder where required, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 3. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
 4. Torch cutting of sheet metal flashing and trim is not permitted.

5. To prevent galvanic corrosion between graphite and aluminum, do not use graphite pencils to mark metal surfaces.
 - B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
 1. Coat concealed side of uncoated-aluminum sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
 2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
 - C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of **10 feet (3 m)** with no joints within **24 inches (600 mm)** of corner or intersection.
 1. Form expansion joints of intermeshing hooked flanges, not less than **1 inch (25 mm)** deep, filled with sealant concealed within joints.
 2. Use lapped expansion joints only where indicated on Drawings.
 - D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
 - E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
 - F. Seal joints as required for watertight construction.
 1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than **1 inch (25 mm)** into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between **40 and 70 deg F (4 and 21 deg C)**, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below **40 deg F (4 deg C)**.
 2. Prepare joints and apply sealants to comply with requirements in Section 07 92 00 "Joint Sealants."
 3. .
 - G. Rivets: Rivet joints in uncoated aluminum where necessary for strength.
- 3.4 ROOF FLASHING INSTALLATION
- A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
 - B. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of **4 inches (100 mm)** over base flashing. Install stainless-steel draw band and tighten.
 - C. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric or butyl sealant and clamp flashing to pipes that penetrate roof.
- 3.5 MISCELLANEOUS FLASHING INSTALLATION
- A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.
 - B. Overhead-Piping Safety Pans: Suspend pans from structure above, independent of other overhead items such as equipment, piping, and conduit, unless otherwise indicated on Drawings. Pipe and install drain line to plumbing waste or drainage system.
- 3.6 CLEANING AND PROTECTION
- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
 - B. Clean off excess sealants.
 - C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.
 - D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 62 00
01 920 030

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. Copings.
2. Roof-edge flashings.
3. Roof-edge drainage systems.
4. Reglets and counterflashings.

- B. Related Sections:

1. Section 06 10 00 "Rough Carpentry" for wood nailers, curbs, and blocking.
2. Section 07 62 00 "Sheet Metal Flashing and Trim" for custom- and site-fabricated sheet metal flashing and trim.
3. Section 07 92 00 "Joint Sealants" for field-applied sealants between roof specialties and adjacent materials.

1.3 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. SPRI Wind Design Standard: Manufacture and install copings and roof-edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressures:
 1. Design Wind Velocity: As indicated on Structural Drawings.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work. Include the following:
- C. Samples for Initial Selection: For each type of roof specialty indicated with factory-applied color finishes provide manufacturer's standard color charts
 1. Sample submittals are required before completion of Architect's exterior color selections.

1.5 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing specialties to include in maintenance manuals.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete and masonry.
- B. Protect strippable protective covering on roof specialties from exposure to sunlight and high humidity, except to extent necessary for the period of roof specialties installation.

1.8 WARRANTY

- A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - 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 EXPOSED METALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.
 1. Surface: Smooth, flat finish.

2. Exposed Coil-Coated Finishes: Prepainted by the coil-coating process to comply with ASTM A 755/A 755M. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - a. Two-Coat Fluoropolymer: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight.

2.2 CONCEALED METALS

- A. Aluminum Sheet: **ASTM B 209 (ASTM B 209M)**, alloy and temper recommended by manufacturer for type of use and structural performance indicated, mill finished.
- B. Aluminum Extrusions: **ASTM B 221 (ASTM B 221M)**, alloy and temper recommended by manufacturer for type of use and structural performance indicated, mill finished.
- C. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304.
- D. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, **G90 (Z275)** coating designation.

2.3 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
- B. Self-Adhering, High-Temperature Sheet: Minimum **30 to 40 mils (0.76 to 1.0 mm)** thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
 1. Thermal Stability: ASTM D 1970; stable after testing at **240 deg F (116 deg C)**.
 2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus **20 deg F (29 deg C)**.
 3. Products: Subject to compliance with requirements, provide one of the following:
 - a. Carlisle Coatings & Waterproofing; CCW WIP 300HT.
 - b. Grace Construction Products, a unit of W. R. Grace & Co.; Ultra.
 - c. Henry Company; Blueskin PE200 HT.
 - d. Metal-Fab Manufacturing, LLC; MetShield.
 - e. Owens Corning; WeatherLock Metal High Temperature Underlayment.
- C. Slip Sheet: Building paper, **3-lb/100 sq. ft. (0.16-kg/sq. m)** minimum, rosin sized.

2.4 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:
 1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.
 2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A 153/A 153M or ASTM F 2329.
- C. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane or silicone polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.
- D. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- E. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.
- F. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.
- G. Solder for Copper: ASTM B 32, lead-free solder.

2.5 COPINGS

- A. Copings: Manufactured coping system consisting of formed-metal coping cap in section lengths not exceeding **12 feet (3.6 m)**, concealed anchorage; corner units, end cap units, and concealed splice plates with same finish as coping caps.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Architectural Products Company.
 - b. ATAS International, Inc.
 - c. Castle Metal Products.
 - d. Cheney Flashing Company.
 - e. Hickman Company, W. P.
 - f. Johns Manville.
 - g. Merchant & Evans, Inc.
 - h. Metal-Era, Inc.
 - i. Metal-Fab Manufacturing, LLC.
 - j. Metal Roofing Systems, Inc.-Lock Fascia
 - k. MM Systems Corporation.
 - l. National Sheet Metal Systems, Inc.
 - m. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc.
 - n. Petersen Aluminum Corporation.
 - o. Ryerson Carbon Sheet Solutions

2. Coping-Cap Material: Zinc-coated steel, nominal **0.034-inch (0.86-mm)** thickness.
 - a. Finish: Two-coat fluoropolymer.
 - b. Color: As selected by Architect from manufacturer's full range.
3. Corners: Factory mitered and mechanically clinched and sealed watertight.
4. Coping-Cap Attachment Method: Snap-on, fabricated from coping-cap material.
5. Snap-on-Coping Anchor Plates: Concealed, galvanized-steel sheet, **12 inches (300 mm)** wide, with integral cleats.

2.6 ROOF-EDGE FLASHINGS

- A. Roof-Edge Fascia: Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding **12 feet (3.6 m)** and a continuous formed- or extruded-aluminum anchor bar with integral drip-edge cleat to engage fascia cover. Provide matching corner units.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hickman Company, W. P.
 - b. Johns Manville.
 - c. Metal-Era, Inc.
 - d. Metal-Fab Manufacturing, LLC.
 - e. Metal Roofing Systems, Inc.
 - f. National Sheet Metal Systems, Inc.
 - g. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc.
 2. Fascia Cover: Fabricated from the following exposed metal:
 - a. Zinc-Coated Steel: Thickness as required to meet performance requirements but not less than nominal **0.034 inch (0.86 mm)** thick.
 3. Corners: Factory mitered and mechanically clinched and sealed watertight.
 4. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.
 5. Fascia Accessories: Fascia extenders with continuous hold-down cleats Soffit trim Downspout scuppers with integral conductor head and downspout adapters.
- B. One-Piece Gravel Stops: Manufactured, one-piece, metal gravel stop in section lengths not exceeding **12 feet (3.6 m)**, with a horizontal flange and vertical leg fascia terminating in a drip edge, and concealed splice plates of same material, finish, and shape as gravel stop. Provide matching corner units.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Architectural Products Company.
 - b. Berger Building Products, Inc.
 - c. Castle Metal Products.
 - d. Cheney Flashing Company.
 - e. Hickman Company, W. P.
 - f. Metal-Era, Inc.
 - g. Metal-Fab Manufacturing, LLC.
 - h. Metal Roofing Systems, Inc.
 - i. MM Systems Corporation.
 - j. National Sheet Metal Systems, Inc.
 - k. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc.
 - l. Petersen Aluminum Corporation.
 2. Fabricate from the following exposed metal:
 - a. Zinc-Coated Steel: Thickness as required to meet performance requirements but not less than nominal **0.034-inch (0.86-mm)** thickness.
 3. Corners: Factory mitered and mechanically clinched and sealed watertight.
 4. Accessories: Fascia extenders with continuous hold-down cleats Soffit trim.
- C. Zinc-Coated Steel Finish: Two-coat fluoropolymer.
 1. Color: As selected by Architect from manufacturer's full range.

2.7 ROOF-EDGE DRAINAGE SYSTEMS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Architectural Products Company.
 2. ATAS International, Inc.
 3. Berger Building Products, Inc.
 4. Castle Metal Products.
 5. Cheney Flashing Company.
 6. Hickman Company, W. P.
 7. Merchant & Evans, Inc.
 8. Metal-Era, Inc.
 9. Metal-Fab Manufacturing, LLC.
 10. Metal Roofing Systems, Inc.

11. MM Systems Corporation.
 12. National Sheet Metal Systems, Inc.
 13. Perimeter Systems; a division of Southern Aluminum Finishing Company, Inc.
- B. Gutters: Manufactured in uniform section lengths not exceeding **12 feet (3.6 m)**, with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least **1 inch (25 mm)** above front edge. Furnish flat-stock gutter straps, gutter brackets, expansion joints, and expansion-joint covers fabricated from same metal as gutters.
1. Fabricate from the following exposed metal:
 - a. Zinc-Coated Steel: Nominal **0.034-inch (0.86-mm)** thickness.
 2. Gutter Profile: As indicated on the Drawings.
 3. Corners: Factory mitered and mechanically clinched and sealed watertight.
 4. Gutter Supports: Manufacturer's standard supports as selected by Architect with finish matching the gutters.
 5. Gutter Accessories: Flat ends.
- C. Downspouts: Plain rectangular complete with mitered elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors.
1. Zinc-Coated Steel: Nominal **0.028-inch (0.71-mm)** thickness.
 2. Size: **4-inch (101.6-mm) by 6-inch (152.4-mm)**.
 3. Fabricate from the following exposed metal:
 - a. Zinc-Coated Steel: Nominal **0.028-inch (0.71-mm)** thickness.
- D. Zinc-Coated Steel Finish: Two-coat fluoropolymer .
1. Color: As selected by Architect from manufacturer's full range.
- 2.8 REGLETS AND COUNTERFLASHINGS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Castle Metal Products.
 2. Cheney Flashing Company.
 3. Fry Reglet Corporation.
 4. Heckmann Building Products Inc.
 5. Hickman Company, W. P.
 6. Keystone Flashing Company, Inc.
 7. Metal-Era, Inc.
 8. Metal-Fab Manufacturing, LLC.
 9. Metal Roofing Systems, Inc.
 10. MM Systems Corporation.
 11. National Sheet Metal Systems, Inc.
- B. Reglets: Manufactured units formed to provide secure interlocking of separate reglet and counterflashing pieces, from the following exposed metal:
1. Formed Aluminum: **0.050 inch (1.27 mm)** thick.
 2. Zinc-Coated Steel: Nominal **0.028-inch (0.71-mm)** thickness.
 3. Corners: Factory mitered and mechanically clinched and sealed watertight.
 4. Stucco Type, Embedded: Provide reglets with upturned fastening flange and extension leg of length to match thickness of applied finish materials.
 5. Concrete Type, Embedded: Provide temporary closure tape to keep reglet free of concrete materials, special fasteners for attaching reglet to concrete forms, and guides to ensure alignment of reglet section ends.
 6. Masonry Type, Embedded: Provide reglets with offset top flange for embedment in masonry mortar joint.
- C. Counterflashings: Manufactured units of heights to overlap top edges of base flashings by **4 inches (100 mm)** and in lengths not exceeding **12 feet (3.6 m)** designed to snap into reglets or through-wall-flashing receiver and compress against base flashings with joints lapped, from the following exposed metal:
1. Zinc-Coated Steel: Nominal **0.028-inch (0.71-mm)** thickness.
- D. Accessories:
1. Flexible-Flashing Retainer: Where required, provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where reglet is provided separate from metal counterflashing.
 2. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.
- E. Zinc-Coated Steel Finish: Two coated fluoropolymer.
1. Color: As selected by Architect from manufacturer's full range.
- 2.9 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

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 the Work.
- B. Examine walls, roof edges, and parapets for suitable conditions for roof specialties.
- C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

- A. Felt Underlayment: Install with adhesive for temporary anchorage to minimize use of mechanical fasteners under roof specialties. Apply in shingle fashion to shed water, with lapped joints of not less than **2 inches (50 mm)**.
- B. Self-Adhering Sheet Underlayment: Install wrinkle free. Apply primer if required by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply in shingle fashion to shed water. Overlap edges not less than **3-1/2 inches (90 mm)**. Roll laps with roller. Cover underlayment within 14 days.
- C. Slip Sheet: Install with tape or adhesive for temporary anchorage to minimize use of mechanical fasteners under roof specialties. Apply in shingle fashion to shed water, with lapped joints of not less than **2 inches (50 mm)**.

3.3 INSTALLATION, GENERAL

- A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete roof-specialty systems.
 - 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
 - 2. Provide uniform, neat seams with minimum exposure of solder and sealant.
 - 3. Install roof specialties to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
 - 4. Torch cutting of roof specialties is not permitted.
 - 5. To prevent galvanic corrosion between graphite and aluminum, do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 - 1. Coat concealed side of uncoated aluminum roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or self-adhering, high-temperature sheet underlayment as required by metal flashing manufacturer.
 - 3. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.
- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.
 - 1. Space movement joints at a maximum of **12 feet (3.6 m)** with no joints within **18 inches (450 mm)** of corners or intersections unless otherwise shown on Drawings.
 - 2. When ambient temperature at time of installation is between **40 and 70 deg F (4 and 21 deg C)**, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal joints with elastomeric or butyl sealant as required by roofing-specialty manufacturer.
- F. Seal joints as required for watertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below **40 deg F (4 deg C)**.

3.4 COPING INSTALLATION

- A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor copings to meet performance requirements.

1. Interlock face and back leg drip edges of snap-on coping cap into cleated anchor plates anchored to substrate at manufacturer's required spacing that meets performance requirements but not greater than **30-inch (760-mm)** centers.

3.5 ROOF-EDGE FLASHING INSTALLATION

- A. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

3.6 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

- A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.
- B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than **30 inches (762 mm)** apart. Attach ends with rivets and seal with sealant or solder copper gutters to make watertight. Slope to downspouts.
 1. Install gutter with expansion joints at locations indicated but not exceeding **50 feet (15.2 m)** apart. Install expansion joint caps.
- C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and **1 inch (25 mm)** away from walls; locate fasteners at top and bottom and at approximately **60 inches (1500 mm)** o.c.
 1. Provide elbows at base of downspout to direct water away from building.
 2. Connect downspouts to underground drainage system indicated. Provide tight connections between downspout and drainage system.

3.7 REGLET AND COUNTERFLASHING INSTALLATION

- A. General: Coordinate installation of reglets and counterflashings with installation of base flashings.
- B. Embedded Reglets: See Section 03 30 00 "Cast-in-Place Concrete" and/or Section 04 20 00 "Unit Masonry" for installation of reglets.
- C. Counterflashings: Insert counterflashings into reglets or other indicated receivers; ensure that counterflashings overlap **4 inches (100 mm)** over top edge of base flashings. Lap counterflashing joints a minimum of **4 inches (100 mm)** and bed with elastomeric or butyl sealant as recommended by flashing manufacturer. Fit counterflashings tightly to base flashings.

3.8 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.
- B. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 07 71 00
01 920 038

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. Silicone joint sealants.
 - 2. Urethane joint sealants.
 - 3. Latex joint sealants.
- B. Related Sections:
 - 1. Section 07 95 00 "Expansion Control" for building expansion joints.

1.3 ACTION 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.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- B. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.5 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 (5 deg C).
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 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 joint-sealant manufacturer, based on testing and field experience.
- B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - 1. Suitability for Immersion in Liquids: Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.
- C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- D. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- E. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.
 - 1. Joint Sealant Applications: Exterior joints in vertical surfaces and horizontal nontraffic surfaces:
 - a. Joints in exterior insulation and finish systems.
 - b. Joints between metal panels.
 - c. Joints between different materials listed above.
 - d. Perimeter joints between materials listed above and frames of doors, windows and louvers.
 - e. Control and expansion joints in ceilings and other overhead surfaces.
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Corning Corporation; 790.
 - b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
 - c. May National Associates, Inc.; Bondaflex Sil 290.
 - d. Pecora Corporation; 890 or 890FTS.
 - e. Sika Corporation, Construction Products Division; SikaSil-C990.
 - f. Tremco Incorporated; Spectrem 1 or Spectrem 800.

2.3 URETHANE JOINT SEALANTS

- A. Immersible, Single-Component or Multicomponent, Nonsag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920, Type S or M, Grade NS, Class 25, for Uses T and I.
 - 1. Joint Sealant Application: Exterior joints in horizontal traffic surfaces subject to water immersion:
 - a. Joints in pedestrian plazas.
 - b. Joints in swimming pool decks.
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems; Sonolastic NP1.
 - b. Sika Corporation, Construction Products Division; Sikaflex - 1a.
 - c. Tremco Incorporated; Vulkem 116.

2.4 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material 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 C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material) or Type B (bicellular material with a surface skin) 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. Do not use Type O (open-cell material) for horizontal surfaces.
- 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. Provide self-adhesive tape where applicable.

2.5 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 except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate. Remove loose particles remaining after cleaning operations.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by 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 or primer 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 C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

- C. Install sealant backings of kind 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.
 - D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
 - E. 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.
 - F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants 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. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
 - G. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.
- 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
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