



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

**MULTI-STEP BIDDING PROCESS
FOR
CONTRACTORS**

**Request For Solicitation For
Construction Services**

Stage II - Roofing Contractors Bidders List FY10

June 16, 2009

REDWOOD ECCLES DAY CARE BUILDING RE-ROOF

SALT LAKE COMMUNITY COLLEGE

SALT LAKE CITY, UTAH

DFCM Project No. 09017660

P & A Architects

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Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at <http://dfcm.utah.gov> or are available upon request from DFCM:

DFCM Supplemental General Conditions dated July 15, 2008
DFCM General Conditions dated May 25, 2005
DFCM Application and Certificate for Payment dated May 25, 2005

Technical Specifications:
Drawings:

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at <http://dfcm.utah.gov>

INVITATION TO BID

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

The State of Utah - Division of Facilities Construction and Management (DFCM) is requesting bids for the construction of the following project:

Project Name: Redwood Eccles Day Care Building Re-roof – Salt Lake Community College - SLC, Utah
DFCM Project No: 09017660

Project Description:

Disposal of the existing shingle roofing system and associated sheet metal. Installation of new sheet metal flashings, roofing underlayments, skylights, and new shingle roofing system. For full details please view the associated bidding documents plans and specifications. Construction Cost Estimate: \$100,000.00

<u>Company</u>	<u>Contact</u>	<u>Fax</u>
Conwest, Inc.	Jeff Rogers	801-553-0642
Nielco Roofing	Mike Wamsley	801-263-0485
Noorda Architectural Metals	James Bywater	801-503-3004
Heritage Roofing	James Smith	801-576-8311
Warburton's, Inc.	Daison Nault	801-785-6651
Kendrick Brothers Roofing	Brent Wood	801-731-2020
Contract West Roofing	Craig Peters	801-943-0257
Summit Roofing	Philip Whiting	801-789-8671
Capitol Roofing Service	Stewart Paulsen	801-562-1159
Island Heights Construction	Alan Ringe	435-753-7452
Redd Roofing Company	Kyle Redd	801-621-1540
Superior Roofing	Scott Handy	801-266-1522
Northern Roofing Consultants	Jared Flynn	801-394-2384
Collins Roofing, Inc.	Doug Collins	801-341-8075
Mt. Peak Roofing	Zane Rust	435-787-4174

The bid documents will be available on **Tuesday, June 16, 2009** in electronic format only on CDs from DFCM at 4110 State Office Building, Salt Lake City, Utah 84114, telephone (801)538-3018 and on the DFCM web page at <http://dfcm.utah.gov>. For questions regarding this project, please contact **Matt Boyer**, Project Manager, DFCM, at (801) 541-0945. No others are to be contacted regarding this project.

A **MANDATORY** pre-bid meeting and site visit will be held at **3:30 PM PM on Wednesday, June 17, 2009 at SLCC Redwood Road Campus Eccles Day Care Building**. All pre-qualified prime contractors wishing to bid on this project must attend this meeting.

Bids must be submitted by **9:00 AM on Monday, June 29, 2009** to DFCM, 4110 State Office Building, Salt Lake City, Utah 84114. Bids will be opened and read aloud in the DFCM Conference Room, 4110 State Office Building, Salt Lake City, Utah. Note: Bids must be received at 4110 State Office Building by the specified time. The contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction & Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of the State.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
JOANNA REESE, CONTRACT COORDINATOR
4110 State Office Bldg., Salt Lake City, Utah 84114
DFCM Form 7a 071508

STAGE II - MULTI-STEP BIDDING PROCESS

ONLY FIRMS PRE-QUALIFIED DURING STAGE I OF THE RFS ARE ALLOWED TO BID ON THIS PROJECT

1. Invitational Bid Procedures

The following is an overview of the invitational bid process. More detailed information is contained throughout the document. Contractors are responsible for reading and complying with all information contained in this document.

Notification: DFCM will notify each registered pre-qualified firm (via fax or e-mail) when a project is ready for Construction Services and invite them to bid on the project.

Description of Work: A description of work or plans/specifications will be given to each contractor. If required, the plans and specifications will be available on the DFCM web page at <http://dfcm.utah.gov> and on CDs from DFCM, at 4110 State Office Building, Salt Lake City, Utah 84114.

Schedule: The Stage II Schedule shows critical dates including the mandatory pre-bid site meeting (if required), the question and answer period, the bid submittal deadline, the subcontractor list submittal deadline, etc. Contractors are responsible for meeting all deadlines shown on the schedule.

Mandatory Pre-Bid Site Meeting: If a firm fails to attend a pre-bid site meeting labeled “Mandatory” they will not be allowed to bid on the project. At the mandatory meeting, contractors may have an opportunity to inspect the site, receive additional instructions and ask questions about project. The schedule contains information on the date, time, and place of the mandatory pre-bid site meeting.

Written Questions: All questions must be in writing and directed to DFCM’s project manager assigned to this project. No others are to be contacted regarding this project. The schedule contains information on the deadline for submitting questions.

Addendum: All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on DFCM’s web site at <http://dfcm.utah.gov>. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding.

Submitting Bids: Bids must be submitted to DFCM 4110 State Office Building, Salt Lake City, Utah 84114 by the deadline indicated on the schedule. Bids submitted after the deadline will not be accepted. Bids will be opened at DFCM on the date, time, and place indicated on the schedule.

Subcontractors List: The firm selected for the project must submit a list of all subcontractors by the deadline indicated on the schedule contained in this document.

Pre-qualified List of Contractors: Contractors shall remain on DFCM’s list of pre-qualified contractors provided: (a) they maintain a performance rating of 3.5 or greater on each project, (b) they are not suspended for failure to comply with requirements of their contract, (c) the firm has not undergone a significant reorganization involving the loss of key personnel (site superintendents, project managers, owners, etc.) to a degree such that the firm no longer meets the pre-qualification requirements outlined in Stage I, (d) the financial viability of the firm has not significantly changed, and (e) the firm is not otherwise disqualified by DFCM. Note: If a contractor fails to comply with items (a) through (e) above,

they may be removed from DFCM's list of pre-qualified contractors following an evaluation by a review committee. Contractors will be given the opportunity to address the review committee before a decision is made. Pre-qualified contractors are ONLY authorized to bid on projects within the discipline that they were originally pre-qualified under.

2. Drawings and Specifications and Interpretations

Drawings, specifications and other contract documents may be obtained as stated in the Invitation to Bid. If any firm is in doubt as to the meaning or interpretation of any part of the drawings, specifications, scope of work or contract documents, they shall submit, in writing, a request for interpretation to the authorized DFCM representative by the deadline identified in the schedule. Answers to questions and interpretations will be made via addenda issued by DFCM. Neither DFCM or the designer shall be responsible for incorrect information obtained by contractors from sources other than the official drawings/specifications and addenda issued by DFCM.

3. Product Approvals

Where reference is made to one or more proprietary products in the contract documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the contract documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the Designer. Such written approval must occur prior to the deadline established for the last scheduled addendum to be issued. The Designer's written approval will be included as part of the addendum issued by DFCM. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the Designer.

4. Addenda

All clarifications from DFCM will be in writing and issued as an addendum to the RFS. Addenda will be posted on DFCM's web site at <http://dfcm.utah.gov>. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda shall result in disqualification from bidding. DFCM shall not be responsible for incorrect information obtained by contractors from sources other than official addenda issued by DFCM.

5. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the Contractor, Subcontractor or Sub-subcontractor. Failure to respond may result in suspension from DFCM's list of pre-qualified contractors.

6. Licensure

The Contractor shall comply with and require all of its Subcontractors to comply with the license laws as required by the State of Utah.

7. Permits

In concurrence with the requirements for permitting in the general conditions, it is the responsibility of the contractor to obtain the fugitive dust plan requirements from the Utah Division of Air Quality and the SWPPP requirements from the Utah Department of Environmental Quality and submit the completed forms and pay any permit fee that may be required for this specific project. Failure to obtain the required permit may result in work stoppage and/or fines from the regulating authority that will be the sole responsibility of the contractor. Any delay to the project as a result of any such failure to obtain the permit or noncompliance with the permit shall not be eligible for any extension in the Contract Time.

8. Time is of the Essence

Time is of the essence in regard to all the requirements of the contract documents.

9. Bids

Before submitting a bid, each bidder shall carefully examine the contract documents; shall visit the site of the work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the contract documents including those added via addenda. If the bidder observes that portions of the contract documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Project Manager prior to the bidding deadline. Changes necessary to correct these issues will be made via addenda issued by DFCM.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Invitation to Bid prior to the published deadline for the submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. **THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.**

If the bid bond security is submitted on a form other than DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **A cashier's check cannot be used as a substitute for a bid bond.**

10. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the "Instructions and Subcontractor's List Form", included as part of the contract documents. The subcontractors list shall be delivered to DFCM or faxed to DFCM at (801) 538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the contract documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements may be suspended from DFCM's list of pre-qualified contractors.

11. Contract and Bond

The Contractor's Agreement will be in the form provided in this document. The duration of the contract shall be for the time indicated by the project completion deadline shown on the schedule. The successful bidder, simultaneously with the execution of the Contractor's Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents.

The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the Contract Sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for Subcontractors will be specified in the Supplementary General Conditions.

12. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of DFCM to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc. Alternates will be selected in prioritized order up to the construction cost estimate.

13. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

14. Withdrawal of Bids

Bids may be withdrawn on written request received from bidders within 24 hours after the bid opening if the contractor has made an error in preparing the bid.

15. DFCM Contractor Performance Rating

As a contractor completes each project, DFCM will evaluate project performance based on the enclosed "DFCM Contractor Performance Rating" form. The ratings issued on this project may affect the firm's "pre-qualified" status and their ability to obtain future work with DFCM.



Stage II PROJECT SCHEDULE

PROJECT NAME: REDWOOD ECCLES DAY CARE BUILDING RE-ROOF				
SALT LAKE COMMUNITY COLLEGE – SALT LAKE CITY, UTAH				
DFCM PROJECT #: 09017660				
Event	Day	Date	Time	Place
Stage II Bidding Documents Available	Tuesday	June 16, 2009	2:00 PM	DFCM 4110 State Office Building SLC, UT and the DFCM web site*
Mandatory Pre-bid Site Meeting	Wednesday	June 17, 2009	3:30 PM	Eccles Day Care Building Main Entrance, SLCC Redwood Road Campus, SLC, UT
Deadline for Submitting Questions	Monday	June 22, 2009	3:00 PM	Matt Boyer – DFCM E-mail: mboyer@utah.gov Fax (801)-538-3267
Addendum Deadline (exception for bid delays)	Wednesday	June 24, 2009	2:00 PM	DFCM web site*
Prime Contractors Turn in Bid and Bid Bond	Monday	June 29, 2009	9:00 AM	DFCM 4110 State Office Building SLC, UT
Subcontractors List Due	Tuesday	June 30, 2009	9:00 AM	DFCM 4110 State Office Building SLC, UT Fax 801-538-3677
Substantial Completion Date	Thursday	August 27, 2009	4:00 PM	TBD

* NOTE: DFCM's web site address is <http://dfcm.utah.gov>



BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Invitation to Bid" and in accordance with the Request for Bids for the **Redwood Science and Industries Building Re-roof – Salt Lake Community College – Salt Lake City, Utah** **DFCM PROJECT NO. 09016660** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS (\$ _____)

(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by August 27, 2009 (specific date), should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$500.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____.

BID FORM
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Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract. The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable 100% Performance and Payment bonds are not delivered within time set forth.

Type of Organization: _____
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

Respectfully submitted,

Name of Bidder

ADDRESS:

Authorized Signature

BID BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of \$ _____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____.

Principal's name and address (if other than a corporation):

By: _____

Title: _____

Principal's name and address (if a corporation):

By: _____

Title: _____
(Affix Corporate Seal)

Surety's name and address:

By: _____
Attorney-in-Fact (Affix Corporate Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this ____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.
My Commission Expires: _____
Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

**Division of Facilities Construction and Management****INSTRUCTION AND SUBCONTRACTORS LIST FORM**

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, based on the following:

DOLLAR AMOUNTS FOR LISTING

PROJECTS UNDER \$500,000: ALL FIRST-TIER SUBS \$20,000 OR OVER MUST BE LISTED
PROJECTS \$500,000 OR MORE: ALL FIRST-TIER SUBS \$35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- If there are no subcontractors for the job that are required to be reported by State law (either because there are no subcontractors that will be used on the project or because there are no first-tier subcontractors over the dollar amounts referred to above), then you do not need to submit a sublist. If you do not submit a sublist, it will be deemed to be a representation by you that there are no subcontractors on the job that are required to be reported under State law. At any time, DFCM reserves the right to inquire, for security purposes, as to the identification of the subcontractors at any tier that will be on the worksite.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A. Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

GROUNDS FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM
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other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

- (1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
- (2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
- (3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
- (4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
- (5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
- (6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONTRACTOR LICENSE #
ELECTRICAL	ABCD Electric Inc.	\$350,000.00	123456789000
LANDSCAPING	"Self" *	\$300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	\$298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: \$350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

* Bidders may list "self", but it is not required.

PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.



SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

Table with 4 columns: TYPE OF WORK, SUBCONTRACTOR, 'SELF' OR 'SPECIAL EXCEPTION', SUBCONTRACTOR BID AMOUNT, CONT. LICENSE #. The table contains 15 empty rows for data entry.

We certify that:

- 1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed 'Self' or 'Special Exception' in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____

SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR OWNER'S REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY OWNER. ATTACH A SECOND PAGE IF NECESSARY.

CONTRACTOR'S AGREEMENT

FOR:

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____
_____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____"

The DFCM General Conditions ("General Conditions") dated May 25, 2005 and Supplemental General Conditions dated July 15, 2008 ("also referred to as General Conditions") and on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ DOLLARS AND NO CENTS (\$_____.00), which is the base bid, and which sum also includes the cost of a 100%

CONTRACTOR'S AGREEMENT
PAGE NO. 2

Performance Bond and a 100% Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete by _____. Contractor agrees to pay liquidated damages in the amount of \$_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Notice to Contractors, Instructions to Bidders/Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee," in the amount of _____ DOLLARS (\$) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ Dollars (\$ _____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20_____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____ authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ Dollars (\$ _____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, 1953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____ (Seal)
Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____ (Seal)
Attorney-in-Fact

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General



Division of Facilities Construction and Management

DFCM

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____ PROJECT NO: _____

AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

The Owner acknowledges receipt of the following closeout and transition materials:

- Record Drawings
- O & M Manuals
- Warranty Documents
- Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of _____. (Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ calendar days from the above date of issuance of this Certificate. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

CONTRACTOR (include name of firm) by: _____
(Signature) DATE

A/E (include name of firm) by: _____
(Signature) DATE

USING INSTITUTION OR AGENCY by: _____
(Signature) DATE

DFCM (Owner) by: _____
(Signature) DATE

4110 State Office Building, Salt Lake City, Utah 84114
telephone 801-538-3018 • facsimile 801-538-3267 • <http://dfcm.utah.gov>

cc: Parties Noted
DFCM, Director

**General Contractor Performance Rating Form**

Project Name:		DFCM Project#	
Contractor: (ABC Construction, John Doe, 111-111-1111)	A/E: (ABC Architects, Jane Doe, 222-222-2222)	Original Contract Amount:	Final Contract Amount:
DFCM Project Manager:		Contract Date:	
Completion Date:		Date of Rating:	

Rating Guideline	QUALITY OF PRODUCT OR SERVICES	COST CONTROL	TIMELINESS OF PERFORMANCE	BUSINESS RELATIONS
5-Exceptional	Contractor has demonstrated an exceptional performance level in any of the above four categories that justifies adding a point to the score. Contractor performance clearly exceeds the performance levels described as "Very Good"			
4-Very Good	Contractor is in compliance with contract requirements and/or delivers quality product/service.	Contractor is effective in managing costs and submits current, accurate, and complete billings	Contractor is effective in meeting milestones and delivery schedule	Response to inquiries, technical/service/administrative issues is effective
3-Satisfactory	Minor inefficiencies/errors have been identified	Contractor is usually effective in managing cost	Contractor is usually effective in meeting milestones and delivery schedules	Response to inquires technical/service/administrative issues is somewhat effective
2-Marginal	Major problems have been encountered	Contractor is having major difficulty managing cost effectively	Contractor is having major difficulty meeting milestones and delivery schedule	Response to inquiries, technical/service/administrative issues is marginally effective
1-Unsatisfactory	Contractor is not in compliance and is jeopardizing achievement of contract objectives	Contractor is unable to manage costs effectively	Contractor delays are jeopardizing performance of contract objectives	Response to inquiries, technical/service/administrative issues is not effective

1. Rate Contractors quality of workmanship, management of sub contractor performance, project cleanliness, organization and safety requirement.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

2. Rate Contractor administration of project costs, change orders and financial management of the project budget.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

3. Rate Contractor's performance and adherence to Project Schedule, delay procedures and requirements of substantial completion, inspection and punch-list performance.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

4. Evaluate performance of contractor management team including project manager, engineer and superintendent also include in the rating team's ability to work well with owner, user agency and consultants.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

5. Rate success of Contractor's management plan, completion of the plans mitigation of project risks and performance of value engineering concepts.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

Signed by:	Date:	Mean Score
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Additional Comments:



Technical Specification For
Salt Lake Community College
Eccles Daycare Building – Roofing Improvements

DFCM Project No. 09017660

6 April 2009

P+A Architects

821 Kensington Avenue
Salt Lake City, Utah 84105

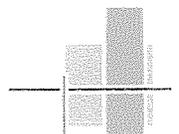


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NOT USED	

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NOT USED

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MECHANICAL

NOT USED

DIVISION 16

ELECTRICAL

NOT USED

Salt Lake Community College
Eccles Daycare Building – Roofing Improvements
Division of Facilities Construction Management

Roof Signs: *Warranty Sign – All low slope roofing projects should require the following sign where feasible in the roofing specifications. Contractor to provide & install a metal sign with vinyl lettering containing the following information and similar format **for all roofs**:*

Caution

This roof is under warranty until (insert year) with (insert manufacturer). All access is to be restricted without facilities manager's permission & log entry. Repair work if necessary should be performed only by an authorized applicator. For leak repairs, contact (insert manufacturer) @ (insert manufacturer warranty claim department phone number) and provide them with warranty number. Questions regarding this roof or any potential work pertaining to this roof, please contact DFCM @ 801-538-3018.

Warranty #:
Warranty Type:
Installation Date:
Manufacturer's Address:

Roofing Contractor:
Contractor Telephone #:
Contractor Address:
Roof Membrane Type:

These signs are to be installed next to all roof access points inside a building as permit able, preferably next to the roof hatch ladder. Signs should be installed next to exterior surface mounted ladder accesses as well. Signs are to have with no sharp protrusions or edges. Signs are to be a minimum thickness of 20 gauge or greater, and no larger than 10" X 14" landscape setting. Sign installation should be coordinated with agency / facility manager.

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Project consists of removal of an existing asphalt shingle roofing system, metal fascia, rain gutters and metal flashings Provide a new asphalt shingle roofing system to the Eccles Daycare Facility at the Salt Lake Community College. 4600 South Redwood Road, Taylorsville, Utah.

- 1. Project Location: – Eccles Daycare Facility - Salt Lake Community College. 4600 South Redwood Road, Taylorsville, Utah.
- 2. Owner: State of Utah

- B. Contract Documents were prepared for the Project by :

P+A Architects
821 East Kensington Avenue
Salt Lake City, Utah 84105
Phone: 801.484.1161
Fax: 801.485.4640
E: parchitects@comcast.net

- C. The Work consists of a .

- 1. The Work includes the removal of the existing asphalt shingle roofing system, metal fascia, rain gutters and metal flashings Provide a new asphalt shingle roofing system.
 - A. The contractor is responsible for the complete execution of the Contract Documents as indicated and specified. He is responsible for the work performed, the acts and omissions of his sub-contractors and suppliers and of persons either directly or indirectly employed by them, as well as the work, acts and omissions of persons directly employed by him.
 - B. Provide, without additional charge, all incidental items required to complete the work even though not specifically indicated. Install all work so that its several component parts function together as a workable system, and in working order.
 - C. Conform to the highest quality standards for materials and workmanship as required to execute work indicated, specified and necessary to fully satisfy the Contract requirements for a complete, finished and acceptable installation.
 - D. The contractor is responsible to verify all field measurements of actual site conditions so that all work fits properly in the locations indicated and specified. Protect existing structures, improvements, landscaping, etc. from physical damage.
 - E. Upon completion of the project, dismantle and remove from the site all construction materials.
 - F. Any existing items which are damaged by the contractor shall be restored to their original or better condition to the satisfaction of the Owner.

1.3 CONTRACTOR USE OF PREMISES

- A. General: During the construction period the Contractor shall have full use of the exterior premises for construction operations, including use of the site as noted on site plan.
- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.
 - 1. Owner Occupancy: Allow for Owner occupancy and use by the public.
 - 2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. **Use of the Existing Building: Maintain the existing building in a weathertight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.**

1.4 OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: The Owner will occupy the site and existing building during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate owner usage. Perform the Work so as not to interfere with the Owner's operations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF PRODUCTS ORDERED IN ADVANCE

END OF SECTION 01010

SECTION 01040 - COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY warning

- A. This Section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:

1. General project coordination procedures.
2. Conservation.
3. Coordination Drawings.
4. Administrative and supervisory personnel.
5. Cleaning and protection.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section "Project Meetings" for progress meetings, coordination meetings, and preinstallation conferences.
2. Division 1 Section "Submittals" for preparing and submitting the Contractor's Construction Schedule.
3. Division 1 Section "Materials and Equipment" for coordinating general installation.
4. Division 1 Section "Contract Closeout" for coordinating contract closeout.

1.3 COORDINATION

- A. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in the 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 assure maximum accessibility for required maintenance, service, and repair.
3. Make provisions to accommodate items scheduled for later installation.

- B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.

Salt Lake Community College
Eccles Daycare Building – Roofing Improvements
Division of Facilities Construction Management

- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of schedules.
 - 2. Installation and removal of temporary facilities.
 - 3. Delivery and processing of submittals.
 - 4. Progress meetings.
 - 5. Project closeout activities.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare coordination drawings where careful coordination is needed for installation of products and materials fabricated by separate entities.
 - 1. Show the relationship of components shown on separate Shop Drawings.
 - 2. Indicate required installation sequences.
 - 3. Comply with requirements contained in Section "Submittals."
- B. Staff Names: Within 15 days of commencement of construction operations, submit a list of the Contractor's principal staff assignments, including the superintendent and other personnel in attendance at the Project Site. Identify individuals and their duties and responsibilities. List their addresses and telephone numbers.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL COORDINATION PROVISIONS

- A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

3.2 CLEANING AND PROTECTION

- A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.
- B. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
- C. 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 dur-

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ing the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining, and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High-speed operation.
21. Unusual wear or other misuse.
22. Contact between incompatible materials.
23. Misalignment.
24. Excessive weathering.
25. Unprotected storage.
26. Improper shipping or handling.
27. Theft.
28. Vandalism.

END OF SECTION 01040

SECTION 01200 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
 - 1. Preconstruction conferences.
 - 2. Preinstallation conferences.
 - 3. Progress meetings.
 - 4. Coordination meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Coordination" for procedures for coordinating project meetings with other construction activities.
 - 2. Division 1 Section "Submittals" for submitting the Contractor's Construction Schedule.
 - 3. Division 7 Section "TPO Roofing" for preinstallation roofing conferences.

1.3 PRECONSTRUCTION CONFERENCE

- A. Schedule a preconstruction conference before starting construction, at a time convenient to the Owner and the Architect, but no later than 15 days after execution of the Agreement. Hold the conference at the Project Site. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Authorized representatives of the Owner, Architect, Engineer the Contractor and its superintendent; major subcontractors; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress, including the following:
 - 1. Tentative construction schedule.
 - 2. Critical work sequencing.
 - 3. Designation of responsible personnel.
 - 4. Procedures for processing field decisions and Change Orders.
 - 5. Procedures for processing interpretation and modifications.
 - 6. Procedures for processing Applications for Payment.
 - 7. Distribution of Contract Documents.
 - 8. Submittal of Shop Drawings, Product Data, and Samples, Quality Assurance/Control Submittals.
 - 9. Preparation of record documents and O & M manuals.
 - 10. Use of the premises.
 - 11. Parking availability.

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12. Office, work, and storage areas.
 13. Equipment deliveries and priorities.
 14. Safety procedures.
 15. First aid.
 16. Security.
 17. Housekeeping.
 18. Working hours.
 19. Resolving current problems
 20. Further orientation as to requirements of contract documents
 21. Engineer's responsibility to owner for inspection.
 22. Working out general schedule of Engineer's inspection.
- D. Engineer will record significant discussions and agreements and disagreements of each meeting and distribute minutes of meeting to everyone concerned, including Owner, within three working days.

1.4 PREINSTALLATION CONFERENCES

- A. Conduct a preinstallation conference at the Project Site before work begins to discuss roofing, roofing insulation, masonry, roof drainage installation.
- B. Attendees: The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect of scheduled meeting dates.
1. Review the progress of other construction activities and preparations for the particular activity under consideration at preinstallation conference, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related Change Orders.
 - d. Purchases.
 - e. Deliveries.
 - f. Shop Drawings, Product Data, and quality-control samples.
 - g. Possible conflicts.
 - h. Compatibility problems.
 - i. Time schedules.
 - j. Weather limitations.
 - k. Manufacturer's recommendations.
 - l. Warranty requirements.
 - m. Compatibility of materials.
 - n. Acceptability of substrates.
 - o. Temporary facilities.
 - p. Space and access limitations.
 - q. Governing regulations.
 - r. Safety.
 - s. Inspecting and testing requirements.
 - t. Required performance results.
 - u. Recording requirements.
 - v. Protection.

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2. Record significant discussions and agreements and disagreements of each conference, and the approved schedule. Promptly distribute the record of the meeting to everyone concerned, including the Owner and the Architect.
3. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.5 PROGRESS MEETINGS

- A. Progress meetings at the Project Site will be conducted at weekly intervals. The Architect and owner will notify general contractor of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and Architect, Engineer, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
 1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.
 2. Review the present and future needs of each entity present, including the following:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Status of submittals.
 - e. Deliveries.
 - f. Off-site fabrication problems.
 - g. Access.
 - h. Site utilization.
 - i. Temporary facilities and services.
 - j. Hours of work.
 - k. Hazards and risks.
 - l. Housekeeping.
 - m. Quality and work standards.
 - n. Modifications
 - o. Change Orders.
 - p. Documentation of information for payment requests.
- D. Reporting: The Architect shall distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 1. Schedule Updating: Revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting, including owner

1.6 COORDINATION MEETINGS

- A. The contractor shall conduct project coordination meetings at required intervals convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special preinstallation meetings.
- B. Engineer will include brief summary, in narrative form, of progress since previous meeting. By three days after each progress meeting date, Engineer will distribute copies of minutes of meeting to each party present and to parties who should have been present, including Owner.
- C. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- D. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01200

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Daily construction reports.
 - 2. Shop Drawings.
 - 3. Product Data.
 - 4. Samples.
 - 5. Quality assurance submittals.
- B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for Payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of subcontractors.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Applications for Payment" specifies requirements for submittal of the Schedule of Values.
 - 2. Division 1 Section "Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.
 - 3. Division 1 Section "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.
 - 4. Division 1 Section "Quality Control" specifies requirements for submittal of inspection and test reports.
 - 5. Division 1 Section "Contract Closeout" specifies requirements for submittal of Project Record Documents and warranties at project closeout.

1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.

1. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
 3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow 2 weeks for initial review. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals.
 - b. If an intermediate submittal is necessary, process the same as the initial submittal.
 - c. Allow 2 weeks for reprocessing each submittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
 1. Provide a space approximately 4 by 5 inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of the Architect.
 - d. Name and address of the Contractor.
 - e. Name and address of the subcontractor.
 - f. Name and address of the supplier.
 - g. Name of the manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect using a transmittal form. The Architect will not accept submittals received from sources other than the Contractor.

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1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
2. Transmittal Form: Use AIA Document G810.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 5 days after the date established for "Commencement of the Work."
1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values."
 2. Within each time bar, indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
 5. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Work Stages: Indicate important stages of construction for each major portion of the Work, including submittal review, testing, and installation.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates.
- D. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

1.6 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Architect at weekly intervals:
1. List of subcontractors at the site.
 2. High and low temperatures, general weather conditions.
 3. Accidents and unusual events.
 4. Meetings and significant decisions.
 5. Stoppages, delays, shortages, and losses.
 6. Emergency procedures.
 7. Orders and requests of governing authorities.
 8. Change Orders received, implemented.
 9. Services connected, disconnected.
 10. Equipment or system tests and startups.
 11. Partial Completions, occupancies.
 12. Substantial Completions authorized.

1.7 SHOP DRAWINGS

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
 - 1. Dimensions.
 - 2. Identification of products and materials included by sheet and detail number.
 - 3. Compliance with specified standards.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurement.
 - 6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 36 by 48.
 - 7. Final Submittal: Submit 5 blue- or black-line prints where required for maintenance manuals. The Architect will retain 2 prints and return the remainder.
 - 8. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

1.8 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
 - 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 - 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
 - 3. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required.
 - 4. Submittals: Submit 4 copies of each required submittal; submit 4 copies where required for maintenance manuals. The Architect will retain one and will return one to the owner and two to the general contractor marked with action taken and corrections or modifications required.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - 5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

- a. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
- b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.9 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 1. Mount or display Samples in the manner to facilitate review of qualities indicated. Prepare Samples to match the Architect's sample. Include the following:
 - a. Specification Section number and reference.
 - b. Generic description of the Sample.
 - c. Sample source.
 - d. Product name or name of the manufacturer.
 - e. Compliance with recognized standards.
 - f. Availability and delivery time.
 2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
 - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
 3. Preliminary Submittals: Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from a range of standard choices.
 - a. The Architect will review and return preliminary submittals with the Architect's notation, indicating selection and other action.
 4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. The Architect will return one set marked with the action taken.
 5. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

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- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
 - 1. Field samples are full-size examples erected on-site to illustrate finishes, coatings, or finish materials and to establish the Project standard.
 - a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.10 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
 - 1. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."

1.11 ARCHITECT'S ACTION

- A. Except for submittals for the record or information, where action and return is required, the Architect will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Architect will stamp each submittal with a uniform, action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:
- C. Unsolicited Submittals: The Architect will return unsolicited submittals to the sender without action.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01300

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Architect.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Cutting and Patching" specifies requirements for repair and restoration of construction disturbed by inspection and testing activities.
 - 2. Division 1 Section "Submittals" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
 - 1. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified

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independent testing agency to perform quality-control services. Costs for these services are included in the Contract Sum.

- B. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
 - 1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.

1.4 SUBMITTALS

- A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Architect. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.
 - 1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
 - 2. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address, and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product and Specification Section.
 - h. Complete inspection or test data.
 - i. Test results and an interpretation of test results.
 - j. Ambient conditions at the time of sample taking and testing.
 - k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on retesting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.

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- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION 01400

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes requirements for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Water service and distribution.
 - 2. Temporary electric power and light.
 - 3. Temporary heat.
 - 4. Ventilation.
 - 5. Sanitary facilities, including drinking water.
 - 6. Storm and sanitary sewer.
- C. Support facilities include, but are not limited to, the following:
 - 1. Storage sheds.
 - 2. Dewatering facilities and drains.
 - 3. Temporary project identification signs and bulletin boards.
 - 4. Waste disposal services.
- D. Security and protection facilities include, but are not limited to, the following:
 - 1. Temporary fire protection.
 - 2. Barricades, warning signs, and lights.
 - 3. Enclosure fencing.

1.3 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

1.4 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 - 1. Building code requirements.
 - 2. Health and safety regulations.

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3. Utility company regulations.
 4. Police, fire department, and rescue squad rules.
 5. Environmental protection regulations.
- B. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- B. Water: Provide potable water approved by local health authorities.

2.2 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4-inch, heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.

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- D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- G. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- H. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
 - 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
 - 4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect. Neither the Owner nor Architect will accept cost or use charges as a basis of claims for Change Orders.
- B. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include me-

ters, transformers, overload-protected disconnects, automatic ground-fault interrupters, and main distribution switch gear.

1. Install electric power service underground, except where overhead service must be used.
 2. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
- C. Temporary Lighting: When overhead floor or roof deck has been installed, provide temporary lighting with local switching.
1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.
- D. Temporary Heat: Provide temporary heat required by construction activities for curing or drying of completed installations or for protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.
- E. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- F. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- G. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
- H. Drinking-Water Facilities: Provide containerized, tap-dispenser, bottled-water drinking-water units, including paper supply.

3.3 SUPPORT FACILITIES INSTALLATION

- A. If contractor chooses to use storage sheds, locate storage sheds, and other temporary construction and support facilities for easy access and within fenced area shown on construction documents.
1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Storage and Fabrication Sheds: (If Required) Install storage and fabrication sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on-site.
- C. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

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- D. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- E. Project Identification and Temporary Signs: Prepare project identification and other signs of size indicated. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
 - 1. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.
- F. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect.
- B. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
 - 1. Locate fire extinguishers where convenient and effective for their intended purpose.
 - 2. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
 - 4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- D. Enclosure Fence: Install an enclosure fence with lockable entrance gates. Locate where indicated, determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.
 - 1. Provide open-mesh, chainlink fencing with posts set in a compacted mixture of gravel and earth.
- E. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

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1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.
 2. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, landscaping and sidewalks at the temporary entrances, as required by the governing authority.
 3. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:
 - a. Replace significantly worn parts and parts subject to unusual operating conditions.

END OF SECTION 01500

SECTION 01700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Operation and maintenance manual submittal.
 - 4. Submittal of warranties.
 - 5. Final cleaning.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16.

1.3 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
 - 1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
 - 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 - 3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, endorsed and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect.
 - 4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the Work.
 - 5. Submit consent of surety to final payment.
 - 6. Submit a final liquidated damages settlement statement.
 - 7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect.

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1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance. If the Work is incomplete, the Architect will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, reinspection will be repeated.

1.4 RECORD DOCUMENT SUBMITTALS

- A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Architect's reference during normal working hours.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
 3. Note related change-order numbers where applicable.
 4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.
 1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
 2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
 3. Note related record drawing information and Product Data.
 4. Upon completion of the Work, submit record Specifications to the Architect for the Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.
 1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
 2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
 3. Upon completion of markup, submit complete set of record Product Data to the Architect for the Owner's records.
- E. Record Sample Submitted: Immediately prior to Substantial Completion, the Contractor shall meet with the Architect and the Owner's personnel at the Project Site to determine which Samples are to be transmitted to the Owner for record purposes. Comply with the Owner's instructions regarding delivery to the Owner's Sample storage area.

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- F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the Architect for the Owner's records.

- G. Maintenance Manuals: Organize operation and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual, heavy-duty, 2-inch (51-mm), 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:
 - 1. Emergency instructions.
 - 2. Spare parts list.
 - 3. Copies of warranties.
 - 4. Recommended "turn-around" cycles.
 - 5. Inspection procedures.
 - 6. Shop Drawings and Product Data.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

- A. Operation and Maintenance Instructions: Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:
 - 1. Maintenance manuals.
 - 2. Record documents.
 - 3. Spare parts and materials.
 - 4. Tools.
 - 5. Identification systems.
 - 6. Hazards.
 - 7. Cleaning.
 - 8. Warranties and bonds.
 - 9. Maintenance agreements and similar continuing commitments.

3.2 FINAL CLEANING

- A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 1 Section "Construction Facilities and Temporary Controls."

- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.

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- a. Remove labels that are not permanent labels.
 - b. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition.
 - c. Wipe surfaces of mechanical and electrical equipment.
 - d. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.
1. Where extra materials of value remain after completion of associated Work, they become the Owner's property. Dispose of these materials as directed by the Owner.

END OF SECTION 01700

SECTION 02070 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected elements of a building.
 - 2. Patching and repairs.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Summary of Work" for use of the building and phasing requirements.
 - 2. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.
 - 3. Division 1 Section "Schedules and Reports" for selective demolition schedule requirements.
 - 4. Division 1 Section "Construction Facilities and Temporary Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities, and environmental protection measures for selective demolition operations.
 - 5. Division 1 Section "Contract Closeout" for record document requirements.

1.3 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
- B. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations.
- C. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.5 SUBMITTALS

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- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.
- B. Proposed dust-control measures.
- C. Proposed noise-control measures.
- D. Schedule of selective demolition activities indicating the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
 - 2. Interruption of utility services.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Detailed sequence of selective demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - 5. Coordination of Owner's continuing occupancy of existing building and of Owner's partial occupancy of completed Work.
- E. Landfill records indicating receipt and acceptance of wastes by a landfill facility licensed to accept wastes.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Engage an experienced firm that has successfully completed selective demolition Work similar to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 PROJECT CONDITIONS

- A. Conduct demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner assumes no responsibility for actual condition of buildings to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Asbestos: Asbestos should not be encountered in the Work. If any materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Architect and the Owner.
- D. Storage or sale of removed items or materials on-site will not be permitted.

1.8 SCHEDULING

- A. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.

1.9 WARRANTY

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- A. Existing Special Warranty: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Applicable)

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled
- D. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.
- E. Survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

- A. Maintain existing utilities to remain in service and protect them against damage during selective demolition operations.
 - a. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.

3.3 PREPARATION

- A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

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1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.
 1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 2. Protect existing site improvements, appurtenances, and landscaping to remain.
 3. **Provide weather protection, during interval between demolition and removal of existing construction, on exterior surfaces and new construction to ensure that no water leakage or damage occurs to structure or interior areas.**
 4. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition operations.

3.4 POLLUTION CONTROLS

- A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.5 SELECTIVE DEMOLITION

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:
 1. 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. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches
 4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 5. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 6. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
 7. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.

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- B. Remove no more existing roofing than can be covered in one day by new roofing. See applicable Division 7 Section for new roofing requirements.

3.6 PATCHING AND REPAIRS

- A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
- B. Patching is specified in Division 1 Section "Cutting and Patching."
- C. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 - 1. Completely fill holes and depressions in existing masonry walls to remain with an approved masonry patching material, applied according to manufacturer's printed recommendations.
- D. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.8 SELECTIVE DEMOLITION SCHEDULE

- A. Remove and reinstall the following:

END OF SECTION 02070

SECTION 06105 - MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Rooftop equipment bases and support curbs.
 - 2. Wood furring, grounds, nailers, plates and blocking.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:
 - 1. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 - 2. For waterborne-treated products, include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
- C. Material test reports from a qualified independent testing agency indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with performance requirements indicated.
- D. Warranty of chemical treatment manufacturer for each type of treatment.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.
 - 1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 - PRODUCTS

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2.1 LUMBER, GENERAL

- A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:
 - 1. WWPA - Western Wood Products Association.
- C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
 - 1. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece.
- D. 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.
 - 1. Provide dressed lumber, S4S, unless otherwise indicated.
 - 2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPA C2 (lumber) Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
- B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. (4.0 kg/cu. m). After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items 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.
- C. Pressure treat wood members in contact with ground or freshwater with waterborne preservatives to a minimum retention of 0.40 lb/cu. ft. (6.4 kg/cu. m).

2.3 DIMENSION LUMBER

- A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.
- B. Other Framing: Provide the following grades and species:
 - 1. Grade: No. 2.
 - 2. Species: Douglas fir-larch; WCLIB or WWPA.

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2.4 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture Content: 19 percent maximum for lumber items are not specified to receive wood preservative treatment.
- D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWPA; No. 2 grade per SPIB; or Standard grade per NLGA, WCLIB or WWPA of any species.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where miscellaneous carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.
- B. Nails, FS FF-N-105.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

2.6 METAL FRAMING ANCHORS

- A. General: Provide galvanized steel framing anchors of structural capacity, type, and size indicated and acceptable to authorities having jurisdiction.
- B. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653, G60 (ASTM A 653M, Z180) coating designation; structural, commercial, or lock-forming quality, as standard with manufacturer for type of anchor indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

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- C. Fit carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Apply field treatment complying with AWPAC M4 to cut surfaces of preservative-treated lumber and plywood.
- E. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.
- F. Countersink nail heads on exposed carpentry work and fill holes with wood filler.
- G. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.2 WOOD BLOCKING AND PLATES

- A. Install where shown and where required for screeding or attaching other work. Cut and shape to required size. Coordinate locations with other work involved.
- B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 WOOD INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints.
 - 1. Match color and grain pattern across joints.
 - 2. Drill pilot holes in hardwood before fastening to prevent splitting. Fasten to prevent movement or warping. Countersink fastener heads.
 - 3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm) for plumb and level. Install adjoining trim with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.6-mm) maximum offset for reveal installation.

END OF SECTION 06105

SECTION 07311 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes asphalt shingles for steep roofs.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 6 Section "Rough Carpentry" for wood sheathing and framing.
 - 2. Division 7 Section "Flashing and Sheet Metal" for metal valley flashing, step flashing, drip edges, and other sheet metal work.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.
- C. Samples for initial selection in the form of manufacturer's sample finishes showing the full range of colors and profiles available for each type of asphalt shingle indicated.
- D. Samples for verification in the form of 2 full-size units of each type of asphalt shingle indicated showing the full range of variations expected in these characteristics.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Classification: Where products with a fire-test-response classification are specified, provide asphalt shingles identical to those tested according to ASTM E 108 or UL 790 and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify each bundle of asphalt shingles with appropriate markings indicating fire-test-response classification of applicable testing and inspecting agency.
- B. Wind-Resistance-Test Characteristics: Where wind-resistant asphalt shingles are indicated, provide products identical to those tested according to ASTM D 3161 or UL 997 and passed. Identify each bundle of asphalt shingles with appropriate markings of applicable testing and inspecting agency.

1.5 DELIVERY, STORAGE, AND HANDLING

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- A. Deliver materials to Project site in manufacturer's unopened bundles or containers with labels intact.
- B. Handle and store materials at Project site to prevent water damage, staining, or other physical damage. Store roll goods on end. Comply with manufacturer's recommendations for job-site storage, handling, and protection.

1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installing asphalt shingles only when existing and forecasted weather conditions will permit work to be performed according to manufacturers' recommendations and warranty requirements, and when substrate is completely dry.

1.7 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Submit a written warranty signed by manufacturer agreeing to repair or replace asphalt shingles that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of asphalt shingles beyond normal weathering.
 - 1. Provide to the owner a GAFMC Golden Pledge® Warranty.
 - 2. 5 STAR Coverage: material and labor costs for repair or replacement tear off protection, disposal costs and workmanship defects.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.
 - 1. Furnish 1/2 square (9.29 sq. m) coverage of asphalt shingles, identical to those to be installed, in unbroken bundles.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering asphalt shingles that may be incorporated in the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide asphalt shingles produced by one of the following:
 - 1. CertainTeed Corporation.
 - 2. Elk Corporation of America.
 - 3. Pre-Approved Equal by Others

- C. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
1. Waterproof Underlayment:
 - a. WinterGuard; CertainTeed Corporation.
 - b. Bituthene Ice and Water Shield; Grace: W.R. Grace & Co.
 - c. StormGuard® Ultra-Flex™, by GAFMC.

2.2 ASPHALT SHINGLES

- A. Colors, Blends, and Patterns: Where manufacturer's standard products are indicated, provide asphalt shingles with the following requirements: Retain one requirement from choices below. If retaining second requirement, indicate colors, etc., on a separate schedule.

A. Shingles:

1. Super-heavyweight 50 year “Plus”, granule surfaced, self sealing asphalt shingle with a strong fiberglass reinforced Micro Weave® core and an Algae Eater™ mineral granule surfacing. Specially cut tabs and bold profile provide a rugged hand-split shake appearance with an 8” exposure. Meets ASTM D 3018, ASTM D 3161, and ASTM D 3462; UL 790 Class A rated with UL 997 Wind Resistance Label. Grand Canyon™ Shingles, by GAFMC
2. CertainTeed Presidential Shake TL: UL Certification of ASTM D3462; Conforms to ASTM D3018 Type I - Self-Sealing; ASTM D3161-08b, Class “F” Wind Resistance (110-mph); ASTM D3161-03b, Class “F” Wind Resistance (110-mph); ASTM D3161-99a, 110-mph Wind Resistance; UL997 Wind Resistance; UL 2390/ASTM D6381 Class “H” and ASTM D7158 Class “H” Wind Resistance; and UL 790 Class A Fire Resistance; glass fiber mat base; ceramically colored/UV resistant mineral surface granules across entire face of shingle; “Tri-laminate”: three-layer laminated, four-tab shingle.
 1. Color: As selected from manufacturer's full range.

B. HIP AND RIDGE SHINGLES:

1. Timbertex® Distinctive Ridge Cap Shingles, by GAFMC.
2. Mountain Ridge by CertainTeed

C. Starter Strip:

1. Universal Starter Strip Shingles, by GAFMC.
2. Starter Strip by CertainTeed

D. Rigid plastic ridge ventilator:

1. Cobra® Rigid Vent III™, by GAFMC
2. Shingle Vent II by CertainTeed

2.3 METAL TRIM AND FLASHING

- A. Metal Drip Edge: Brake-formed sheet metal with at least a 3-inch roof deck flange and a 2-inch fascia flange with a 1/2-inch drip at lower edge. Furnish the following material in lengths of 10 feet.
 - 1. Material: Aluminum sheets.
- B. Metal Flashing: Job-cut to sizes and configurations required.
 - 1. Material: Aluminum sheets.
 - 2. Material: Galvanized-steel sheets.

2.4 ACCESSORIES

- A. Felt Underlayment: Type II, 36-inch-wide 30lb., asphalt-saturated organic felt, complying with ASTM D 226, 30 lb. or ASTM D 4869.
- B. Asphalt Plastic Cement: Nonasbestos fibrated asphalt cement, complying with ASTM D 4586.
- C. Roll-Roofing Lap Cement: Nonasbestos asphalt lap cement, complying with ASTM D 3019, Type III.
- D. Nails: Aluminum or hot-dip galvanized steel, 0.120-inch- (3-mm-) diameter barbed shank, sharp-pointed, conventional roofing nails with a minimum 3/8-inch- (9.5-mm-) diameter head and of sufficient length to penetrate 3/4 inch (19 mm) into solid decking or at least 1/8 inch (3 mm) through plywood sheathing.
 - 1. Where nails are in contact with flashing, prevent galvanic action by providing nails made from the same metal as that of the flashing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of asphalt shingles. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with noncorrosive roofing nails.
- B. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.

3.3 INSTALLATION

- A. General: Comply with manufacturer's instructions and recommendations but not less than those recommended by ARMA's "Residential Asphalt Roofing Manual" or "The NRCA Steep Roofing Manual."

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1. Fasten asphalt shingles to roof sheathing with nails.
- B. Felt Underlayment: Apply 1 layer of felt underlayment horizontally over entire surface to receive asphalt shingles, lapping succeeding courses a minimum of 2 inches (50 mm), end laps a minimum of 4 inches (100 mm), and hips and valleys a minimum of 6 inches (150 mm). Fasten felt with sufficient number of roofing nails or noncorrosive staples to hold underlayment in place until asphalt shingle installation.
 1. Apply an additional layer of felt underlayment on roof decks with a slope of 2 to 4 inches per foot (1:6 to 1:3).
 2. Omit felt underlayment at areas of waterproof underlayment. Lap felt underlayment over waterproof underlayment as recommended by manufacturer but not less than 2 inches (50 mm).
- C. Waterproof Underlayment: Apply waterproof underlayment at eaves. Cover deck from eaves as indicated on documents.
 1. In addition to eaves, apply waterproof underlayment in place of felt underlayment at valleys.
- D. Flashing: Install metal flashing and trim as indicated and according to details and recommendations of the "Asphalt Roofing" section of "The NRCA Steep Roofing Manual" and ARMA's "Residential Asphalt Roofing Manual."
- E. Install asphalt shingles, beginning at roof's lower edge, with a starter strip as indicated. Fasten asphalt shingles in the desired weather exposure pattern; use number of fasteners per shingle as recommended by manufacturer. Use vertical and horizontal chalk lines to ensure straight coursing.
 1. Cut and fit asphalt shingles at valleys, ridges, and edges to provide maximum weather protection. Provide same weather exposure at ridges as specified for roof. Lap asphalt shingles at ridges to shed water away from direction of prevailing wind.
 2. Use fasteners at ridges of sufficient length to penetrate sheathing as specified.
- F. Ridge Vents: Install ridge vents according to manufacturer's instructions.

3.4 ADJUSTING

- A. Replace any damaged materials installed under this Section with new materials that meet specified requirements.

END OF SECTION 07311

CONTRACTOR ROOFING WARRANTY

WHEREAS:

Of (Address):

(Phone):

Herein called the "Roofing Contractor," has performed roofing and associated ("Work") on the following project:

Owner: State of Utah

Agency:

Name of Building:

DFCM Project Number:

Address:

Description of Work:

Date of Acceptance:

Warranty Period: 5 Years

Date of Expiration:

AND WHEREAS Roofing Contractor 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 said designated Warranty Period.

NOW THEREFORE Roofing Contractor hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period, Roofing Contractor will at his own cost and expense, promptly 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 watertight condition. In addition to making the Work watertight, the Roofing Contractor shall promptly remove and/or repair blisters, ridges, flashings, splits and other irregularities which in the opinion of the Roofing Manufacturer's technical representative do not conform to acceptable roofing practices and conditions. These repairs shall be made promptly and to the satisfaction of the Roofing Manufacturer's technical representative. Upon notice of Owner to Roofing Contractor, Contractor agrees to make the necessary leak repairs according to manufacturer's specifications within five business days from written notice given by DFCM.



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, not caused by the act or negligence of Contractor and caused by: a) lightning, windstorm in excess of manufacturer's specifications; b) fire; c) failure of roofing system substrate including cracking settlement, excessive deflection, deterioration, and decomposition; d) faulty construction of parapet walls, copings, chimneys, skylights, vents, and equipment supports, not part of contractors work and e) activity on roofing by others including construction contractors, maintenance personnel, other persons, and animals whether authorized or unauthorized by Owner, but only to the extent any of the above exclusions are not due to the failure of the Roofing Contractor to meet all required specifications and the customary practices of the performing the work. When Work has been damaged by any of the foregoing causes, Warranty shall be suspended until such damage has been repaired by Roofing Contractor, and until cost and expense thereof has been paid by DFCM or by another responsible party so designated.
2. The Roofing Contractor is responsible for damage to Work covered by this Warranty, and is liable for consequential damages to building or building contents, resulting from leaks or faults or defects of Work that are related to Roofing Contractor's failure to meet.
3. During Warranty Period, if Owner allows alteration of Work by anyone other than Roofing Contractor or anyone not authorized by Roofing Contractor, 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 upon date of said alterations, but only to extent said alterations affect Work covered by this Warranty. If Owner engages Roofing Contractor to perform said alterations, Warranty shall not become null and void, unless Roofing Contractor, prior to proceeding with said Work, shall reasonably claim that said alterations would damage or deteriorate Work, thereby reasonably justifying a limitation or termination of this Warranty.
4. 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 upon date of said change, but only to extent said change affects Work covered by this Warranty.
5. The DFCM shall notify Roofing Contractor of observed, known or suspected leaks, defect or deterioration, and shall afford reasonable opportunity for Roofing Contractor to inspect Work, and to examine evidence of such leaks, defects or deterioration.



This Warranty is recognized to be the only Warranty of Roofing Contractor on said Work, and is in addition to the Roofing Warranty furnished by the Roofing Manufacturer, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to it in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Contractor of responsibility for performance of original Work in accordance with requirements of the Contract Documents, regardless of whether Contract was a contract directly with DFCM or a subcontract with DFCM's General Contractor.

Any modification to the terms and conditions of this document will be submitted to the Attorney General's Office for investigation/prosecution.

IN WITNESS THEREOF, this instrument has been dully executed this

Day of , 20

Signed by Roofing Contractor by:

Roofing Contractor

Business Address

Signature & Printed Name

Title

Cosigned by General Contractor by:

General Contractor

Business Address

Signature & Printed Name

Title

**GUIDELINES FOR CLEANUP OF
BIRD AND BAT EXCREMENT**

September 22, 2004

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GUIDELINES FOR CLEANUP OF BIRD AND BAT EXCREMENT

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Acknowledgment

Most of the information in these guidelines was extracted directly from the 14-page document, USAEHA TG No. 142 December 1992 MANAGING HEALTH HAZARDS ASSOCIATED WITH BIRD AND BAT EXCREMENT. This document was produced by the U.S. Army Environmental Hygiene Agency (USAEHA), which is now known as the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM).

Information taken from the USAEHA document has been reformatted for these guidelines and augmented in some areas by the preparer to conform to current industrial hygiene and safety standards and recommended good practices. References for technical information contained in the USAEHA document are not included in these guidelines but may be located by accessing the original document via the internet.

GUIDELINES FOR CLEANUP OF BIRD AND BAT EXCREMENT

Prepared by IHI Environmental based on U.S. Army Environmental Hygiene Agency (USAEHA) TG No. 142 December 1992 with current information input

1.0 Purpose and Scope

Bird and bat excrement, commonly referred to as droppings, accumulates under trees near human habitations and on structures and machinery. These accumulations cause corrosion, create objectionable odor and appearance, but more importantly they create an environment favorable to the development of disease organisms harmful to humans and domestic animals. These guidelines discuss the nature of the health hazard and provide recommendations for conducting an appropriate cleanup while minimizing the health risk to those performing the work as well as others present in the general work area.

2.0 Disease Organisms Commonly Found in Bird and Bat Excrement

2.1 General

The high nutrient content of accumulated bird and bat excrement provides an excellent growth medium for organisms of potential human health concern. Mycosis, a fungal infection resulting in disease, is usually incurred by inhaling dusts, especially organic (decaying vegetation) dusts and dusts enriched with bird or bat droppings, which contain massive amounts of the disease organisms. These fungal organisms are ubiquitous in the environment and exposure to them is impossible to avoid. However, most humans are resistant to the amounts they encounter during normal activities.

Exposure to massive amounts of these organisms, such as during the cleanup of bird and bat excrement, can overwhelm typically resistant individuals and have serious health effects. Furthermore, the risk of contracting certain of these fungal infections is greatly increased by certain predisposing conditions, such as an immunocompromised state (e.g., HIV infection, immunosuppressing medication, cancer, etc.) antibiotic therapy, surgical trauma, skin injury, and chronic disease.

The fungal disease organisms found in bird and bat droppings are listed below, including the source of the organisms, the methods of contraction, and the health effects. This section also contains information on rabies, since removal of bird and bat excrement in some locations could involve handling bats and rabies is prevalent in many bat populations.

2.2 Cryptococcosis (Torulosis, European Blastomycosis)

- (a) Source: Organic dusts, especially those contaminated with pigeon or bat droppings, are the most important source of the fungus, *Cryptococcus*

neoformans. It is very common in high concentrations in samples taken from old roosting sites.

- (b) Contraction: Cryptococcosis is acquired by inhaling the yeast-like vegetative cells of the organism. These cells measure 1-3 microns in diameter and are easily airborne.
- (c) Health Effects: Clinical manifestations of pulmonary infection are not characteristic and may be absent. The infection may disseminate to the central nervous system, resulting in cryptococcal meningitis (inflammation of the membranes of the brain and spinal cord), which is difficult to diagnose and fatal if not properly, and promptly, treated.

2.3 Histoplasmosis

- (a) Source: Moist soils that have been enriched by accumulated bird droppings for 3 or more years are the most common source of this fungus (mold), *Histoplasma capsulatum*; however, it has been found in bird and bat droppings not in contact with the soil.
- (b) Contraction: Humans are infected by inhalation of the spores of this fungus which can be carried by wind and dust.
- (c) Health Effects: Most infections produce no symptoms or only a mild influenza-like illness. However, pneumonia, blindness, and even death can occur from a chronic infection.

2.4 Psittacosis (Ornithosis, Parrot Fever)

- (a) Source: Infected birds carrying the organism, *Chlamydia psittaci*, are the primary source of this organism.
- (b) Contraction: The disease is contracted by inhaling *C. psittaci*, which is found in feathers and droppings from infected birds. Since the organism becomes less infectious with time, active roosts are of greatest concern. While the disease most often occurs in bird handlers, persons cleaning up bird excrement could contract the disease as well.
- (c) Health Effects: Psittacosis is characterized by fever, headaches, and muscle pain, with or without obvious respiratory symptoms. Untreated cases, especially in older patients, can progress to pneumonia and/or generalized toxemia resulting in death.

2.5 Rabies (a rhabdovirus) – may be contracted from a rabid bat during cleanup

- (a) Source: Rabies is contracted when the virus-laden saliva of an infected animal is introduced into the body by a bite or scratch (very rarely through mucous membranes or a fresh break in the skin). Airborne rabies infection has been demonstrated only in one cave in Texas where millions of bats had roosted for many years.
- (b) Contraction: The danger of rabies infection by inhalation is slight, but the danger from handling bats is much greater, especially since infected bats may

be present during a cleanup operation. Cleanup personnel should be cautioned to handle bats only with nets and leather gloves.

- (c) Health Effects: The onset of rabies often begins with a sense of apprehension, headache, fever, malaise and indefinite sensory changes. The disease progresses to paralysis, throat muscle spasms when attempting to swallow (causing fear of water or hydrophobia), delirium and convulsions. Death is often from respiratory paralysis. Rabies can be prevented by vaccination during the disease's incubation period. Once symptoms appear, however, death is almost always inevitable.

3.0 Selection of Personnel for Decontamination and Cleanup

3.1 Selection of Disease-resistant Individuals

Contact your Occupational Medicine Physician for assistance in selecting personnel for cleanup and/or decontamination of bird and bat excrement. They should be screened for general health status, conditions that may predispose them to infection by fungi (see para 2.1), and resistance to histoplasmosis. **Note:** The Centers for Disease Control (CDC) reported in December 2003 that in the United States, 85% of *Cryptococcus* cases occur in HIV-infected persons.

- (a) Currently, there are no screening tests available for determining immunity to *Cryptococcus neoformans*.
- (b) Most persons who come in contact with *Histoplasma capsulatum* for the first time will become infected. Personnel who have had histoplasmosis and have recovered are less likely to contract this disease again. Therefore, such individuals, if available, should be selected for the job. Skin testing for histoplasmosis is recommended for screening, with positive tests indicating active immunity in healthy workers. Histoplasmin antigen is available for skin testing and provides reliable identification of individuals who have had past infection. Blood serology titers are less sensitive than skin testing and should not be used as a screening tool. **Note:** Since exposure to *Histoplasma capsulatum* is not normally associated with the cleanup of pigeon droppings, these tests are not recommended unless the cleanup will involve handling potentially contaminated soil where the organism is more commonly found.
- (c) The best technique to prevent infection with *Cryptococcus neoformans* or *Histoplasma capsulatum* is to provide proper respiratory protection to exposed workers and to properly handle the droppings as described in these guidelines.

3.2 Selection of Healthy Individuals

- (a) Perform pre-placement evaluation on all individuals who are selected for bird and bat excrement cleanup work crews to determine if they have increased

susceptibility. A medical history and physical exam should be performed with attention to cancer, steroid therapy, immunodeficiencies, pulmonary disease, diabetes mellitus, and other immunocompromising states.

- (b) Select workers who are physically and psychologically able to perform their work while wearing the prescribed respiratory protection. As a minimum, pre-placement respiratory examinations should meet the OSHA requirements for wearing a negative pressure respirator including the determination of the forced expiratory volume in one second (FEV1) and forced vital capacity.

4.0 Cleanup and Removal of Bird and Bat Droppings

4.1 General

Cryptococcosis and histoplasmosis infections typically occur by inhaling the pathogenic spores through the nose and mouth. Therefore, bird and bat droppings are most dangerous when they are dry and subject to becoming airborne as a fine dust, particularly when disturbed by sweeping or scraping. Safe cleanup is based on protection from spore inhalation and minimization of spore dispersal. If at all possible, coordinate cleaning efforts with the installation of a modern birdproofing system. Assume that a health hazard is present whenever bird and bat droppings are disturbed and observe the following precautions.

4.2 Assessment and Decontamination of Bird and Bat Droppings

- (a) Risk Assessment: *Cryptococcus neoformans* is primarily found in pigeon droppings and less often in soil and organic debris. The risk of contracting cryptococcosis is not related to the age of the excrement. *Histoplasma capsulatum* usually develops only at bird roosts that have existed for 3 years or more. It is uncommon at pigeon roosts but grows well in excrement-enriched soil.
- (b) Sampling for Disease Organisms: Sampling is not recommended due to the difficulty, time, and expense involved. Laboratory processing of samples may require up to 8 weeks, test procedures are not totally reliable (the disease organisms may be present but not detected), and interpretation of the results is generally not necessary if the cleanup precautions outlined in these guidelines are followed.
- (c) Decontamination: Decontamination of an excrement cleanup site may be considered appropriate after a thorough cleaning has been accomplished, especially if the necessary steps have been taken to minimize future contamination. A 10% standard household bleach in water solution (approximately 13 ounces of bleach per gallon of water) applied with a low velocity water sprayer is recommended for this purpose. In order for this disinfectant to be effective, the application surface should remain moist for at least 10 minutes. **Note:** Workers applying the 10% bleach solution should

where the PPE recommended in these guidelines and use combination respirator cartridges for P-100 particulate and acid gas. Also, it should be noted that the bleach solution may cause discoloration on surfaces where it is applied.

4.3 Protection of Workers from Infective Organisms

- (a) Preliminary Consultation: Prior to disturbing accumulated droppings, inform the occupational medicine physician responsible for the workers and consult with an industrial hygienist for advice on personal safety measures, such as protective clothing and the proper selection, use, and fitting of respirators. Workers should have current respiratory protection physicals and current fit-tests for the respirators they will be using.
- (b) Breathing Protection: When working with accumulated droppings, wear a NIOSH-approved full-face respirator with high efficiency particulate air (HEPA) P-100 filters or a supplied air respirator with full-face piece. A full-face powered air purifying respirator (PAPR) equipped with P-100 filters is also acceptable. Dust and particle masks will not provide adequate protection and are not approved for this use. **Note:** If the 10% bleach decontamination procedure is used, workers applying the bleach solution should use combination respirator cartridges for P-100 particulate and acid gas.
- (c) Protective Clothing: Wear disposable coveralls with hoods, sturdy rubber gloves, and rubber boots to protect personal clothing from contamination with infective organisms. Seal the glove/sleeve and boot/leg interfaces with duct tape before entering the worksite. Before leaving the work site, vacuum the protective coveralls, boots, and gloves using a HEPA vacuum, then walk to an excrement-free area, remove the protective clothing, and place it in plastic bags prior to removing respiratory protection. Treat disposable clothing believed to be contaminated with disease agents as an infectious waste.
 - 1. Nondisposable work clothing (e.g., underclothing or swim suits) and respirators should be removed, placed in a plastic bag, and sealed. These items must be disinfected in the bag before final cleaning and reuse. Use of disposable underclothing is recommended to eliminate the need for disinfecting regular underclothing or swim suits. Workers must not wear their own personal street clothing under the disposable coveralls.
 - 2. If the disposable coveralls or other protective clothing are torn, the worker(s) must shower prior to putting on their street clothes. It is recommended that workers shower and thoroughly wash their hair at the end of their shift.

4.4 Protection of Workers from Safety Hazards

If cleanup activities on building roofs, ledges, etc., could pose a fall hazard to workers, appropriate fall protection and safety harnesses should be used. Where cleanup activities will be conducted in close quarters with low overheads, such as attics or crawlspaces, workers should wear hard hats or bump caps.

4.5 Application of Water

Although droppings are usually easier to clean up when they are dry and crusted, saturating them with water before removal is recommended to prevent the debris and any pathogens from becoming airborne. This should be done with a low-velocity mist spray. Using high pressure and/or a concentrated stream, such as from a hose nozzle, may scatter the droppings before they can be adequately wetted. However, hosing may be used for removing small amounts of recently deposited droppings from sidewalks and pavement. A portable hand-pressurized sprayer is satisfactory for applying limited amounts of water. The addition of a small amount of surfactant, approximately 1 to 2 ounces of dishwashing liquid per 5 gallons of water, is recommended to speed the saturating process and facilitate surface cleaning.

4.6 Nonmetallic Tools

On historic structures, use only nonmetallic tools (such as plastic spatulas and brushes with natural fiber or nylon bristles) to remove droppings. Do not use tools that can easily damage building surfaces, such as coarse wire brushes.

4.7 Public Protection

Do not perform bird excrement removal on public buildings during normal working hours. If possible, schedule the removal for weekends or during other periods of minimum building use. Protect interior air by closing all heating and cooling system air intakes during the cleanup (shut down the entire system if possible). Unless droppings are inside the building itself, perform all work from the outside of the building. Provide barricades and signage to keep the public clear of the work site during all operations.

4.8 Disposal

Double bag the droppings and associated soil in 4-mil or thicker plastic bags, close the bags securely, and transport them directly to a landfill to be buried. If the droppings have been proven to contain *Cryptococcus neoformans* and/or *Histoplasma capsulatum* they may be incinerated. Do not place the bags in a dumpster or leave at a collection point for later pickup as they could be torn during handling and release their potentially infectious contents. Wear protective clothing and equipment when collecting the bird and bat droppings for final disposal. **Note:** You may clean up small amounts of fresh droppings by scraping or hosing with water.

PREPARATION CHECKLIST

Personal Protection Equipment (PPE)

- _____ Full-face negative pressure respirators in appropriate sizes (pre-fitted to individual workers) or full-face powered air-purifying respirators (PAPRs)
- _____ P-100 respirator cartridges to fit individual respirators
- _____ Disposable coveralls with hoods in appropriate sizes & disposable underclothing in appropriate sizes
- _____ Duct tape to seal coverall hand and leg openings
- _____ Sturdy rubber gloves and calf-high rubber boots
- _____ Fall protection/safety harnesses (if appropriate)
- _____ Hard hats/bump caps (if appropriate)
- _____ Combination P-100 & Acid Gas respirator cartridges (for use if bleach decontaminant will be applied)
- _____ Leather gloves and netting (if it might be necessary to remove bats from the area)

Equipment

- _____ HEPA vacuum with charged battery or power cord
- _____ Low velocity water sprayers
- _____ Tools: shovels, scrappers/flat bladed lawn edgers, spatulas, and brushes (brushes and scrappers should be non-metallic if building surface damage could be a concern)
- _____ Water hoses (for cleanup of small amounts of fresh droppings only)
- _____ Portable decontamination/change area with shower
- _____ Vehicle to haul filled waste bags to the landfill

Materials and Supplies

- _____ Four-mil plastic waste bags (sufficient quantity for double bagging waste and disposable clothing)
- _____ Dishwashing liquid
- _____ Paper towels for drying after showering
- _____ Household bleach for decontamination (if decontaminant is to be applied)

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes sheet metal flashing and trim in the following categories:
 - 1. Exposed trim and fasciae.
 - 2. Metal flashing.

- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 7 Section "Joint Sealants" for elastomeric sealants.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.
- B. Fabricate and install flashings at roof edges to comply with recommendations of FM Loss Prevention Data Sheet 1-49 for the following wind zone:
 - 1. Wind Zone 3: Wind pressures of 46 to 104 psf (2.20 to 4.98 kPa).

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.
- C. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.
- D. Samples of sheet metal flashing, trim, and accessory items, in the specified finish. Where finish involves normal color and texture variations, include Sample sets composed of 2 or more units showing the full range of variations expected.
 - 1. 6-inch- (200-mm-) square Samples of specified sheet materials to be exposed as finished surfaces.

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2. 6-inch- (300-mm-) long Samples of factory-fabricated products exposed as finished Work. Provide complete with specified factory finish.
- E. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Mockups: Prior to installing sheet metal flashing and trim, construct mockups indicated to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.
1. Locate mockups on-site in the location and of the size directed by Architect.
 2. Notify Architect one week in advance of the dates and times when mockups will be constructed.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Construct mockups for the following type of sheet metal flashing and trim:
 - a. Exposed trim and fasciae.
 - b. Copings.
 5. Obtain Architect's approval of mockups before start of final unit of Work.
 6. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - a. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

1.6 PROJECT CONDITIONS

- A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 METALS

- A. Galvanized Steel Sheet: ASTM A 526, G 90 (ASTM A 526M, Z 275), commercial quality, or ASTM A 527, G 90 (ASTM A 527M, Z 275), lock-forming quality, hot-dip galvanized steel sheet with 0.20 percent copper, mill phosphatized where indicated for painting; not less than 24 gauge thick, unless otherwise indicated.

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- B. Coil-Coated-Color Clad Galvanized Steel Sheet: Zinc-coated, commercial-quality steel sheet conforming to ASTM A 755, G 90 (ASTM A 755M, Z 275) coating designation, coil coated with high-performance fluoropolymer coating as specified in "Coil-Coated Galvanized Steel Sheet Finish" Article; not less than 24 gauge thick, unless otherwise indicated.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Burning Rod for Lead: Same composition as lead sheet.
- B. Solder: ASTM B 32, Grade Sn50, used with rosin flux.
- C. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.
- D. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4-mm) dry film thickness per coat.
- E. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.
- F. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7 Section "Joint Sealants."
- G. Epoxy Seam Sealer: 2-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior and interior nonmoving joints, including riveted joints.
- H. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.
- I. Paper Slip Sheet: 5-lb/square (0.244 kg/sq. m) red rosin, sized building paper conforming to FS UU-B-790, Type I, Style 1b.
- J. Polyethylene Underlayment: ASTM D 4397, minimum 6-mil- (0.15-mm-) thick black polyethylene film, resistant to decay when tested according to ASTM E 154.
- K. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.
- L. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

2.3 FABRICATION, GENERAL

- A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.
- B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

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- C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- E. Seams: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
- F. Expansion Provisions: Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- G. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- H. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.
- I. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.
- J. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.
 - 1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.4 SHEET METAL FABRICATIONS

- A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.
- B. Exposed Trim and Fasciae: Fabricate from the following material:
 - 1. Color Clad Coil-Coated Aluminum: 24 gauge.
- C. Steepled Counter Flashings: Fabricate from the following material:
 - 1. Color Clad Coil-Coated Galvanized Steel: 26 gauge.
- D. Fabricated Skylight Cap Metal: Fabricate from the following material:
 - 1. Color Clad Coil-Coated Galvanized Steel: 26 gauge.
- E. Drip Edges: Fabricate from the following material:
 - 1. Color Clad Coil-Coated Aluminum: 24 gauge.
- F. Valley Flashings: Fabricate from the following material:

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1. Color Clad Coil-Coated Galvanized Steel: 26 gauge.

G. Metal Roof Crickets: Fabricate from the following material:

1. Color Clad Coil-Coated Galvanized Steel: 20 gauge.

2.5 COIL-COATED GALVANIZED STEEL SHEET FINISH

A. High-Performance Organic Coating Finish: Apply the following system by coil-coating process on galvanized steel sheet as recommended by coating manufacturers and applicator.

1. Fluoropolymer 2-Coat Coating System: Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.

a. Color and Gloss: As per architect direction

b. Resin Manufacturers: Subject to compliance with requirements, provide fluoropolymer coating systems containing resins produced by one of the following manufacturers:

1) Ausimont USA, Inc. (Hylar 5000)

2. Coil-Coated Steel Sheet Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

3. Coil-Coated Steel Sheet Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Atas Aluminum Corporation.

b. Copper Sales, Inc.

c. MM Systems Corporation.

d. Petersen Aluminum Corporation.

e. Vincent Metals.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

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- B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Roof-Edge Flashings: Secure metal flashings at roof edges according to FM Loss Prevention Data Sheet 1-49 for specified wind zone.
- D. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- E. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pre-tinned surface would show in finished Work.
 - 1. Do not solder the following metals:
 - a. Aluminum.
 - b. Coil-coated galvanized steel sheet.
 - 2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
- F. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.
 - 1. Use joint adhesive for nonmoving joints specified not to be soldered.
- G. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- H. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.
 - 1. Bed flanges of Work in a thick coat of roofing cement where required for waterproof performance.
- I. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing.
- J. Equipment Support Flashing: Coordinate equipment support flashing installation with roofing and equipment installation. Weld or seal flashing to equipment support member.

3.3 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

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END OF SECTION 07620

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes sealants for the following applications, including those specified by reference to this Section:
- B. This Section includes sealants for the following applications:
 - 1. Exterior joints in the following vertical and horizontal surfaces and nontraffic horizontal surfaces:
 - a. Locations as indicated on drawings.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required. Install joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.
- E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.
- F. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

- G. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- H. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- I. Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.
- J. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
 - 2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
 - 3. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in peel, and indentation hardness.
 - 4. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.
- D. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to joint substrates as follows:
 - 1. Locate test joints where indicated or, if not indicated, as directed by Architect.
 - 2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of nonelastomeric sealant and joint substrate indicated.
 - 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
 - 4. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
 - 5. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.

6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

E. Mockups: Before installing joint sealants, apply elastomeric sealants as follows to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution:

F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: 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.
2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 50 deg F (4.4 deg C).
3. When joint substrates are wet.

B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.8 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

C. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.
- D. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified in the sealant schedules at the end of Part 3.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.
- B. Additional Movement Capability: Where additional movement capability is specified in the Elastomeric Joint-Sealant Schedule, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.
- C. Stain-Test-Response Characteristics: Where elastomeric sealants are specified in the Elastomeric Joint-Sealant Schedule 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. Continuous-Immersion-Test-Response Characteristics: Where elastomeric sealants will be immersed continuously in water, provide products that have undergone testing according to ASTM C 1247, including initial six-week immersion period and additional immersion periods specified below, and have not failed in adhesion or cohesion when tested with substrates indicated for Project.

1. Two additional four-week immersion periods.

2.4 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Elastomeric Tubing Sealant Backings: Neoprene or EPDM tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

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

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
 - a. Concrete.
 - b. Masonry.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
 - a. Metal.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- E. Install sealants by proven techniques to 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 provided for 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 according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealants from surfaces adjacent to joint.
 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 configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 - a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3.4 CLEANING

- A. Clean off excess sealants 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 the original work.

3.6 ELASTOMERIC JOINT-SEALANT SCHEDULE

- A. Medium-Modulus Neutral-Curing Silicone Sealant: provide products complying with the following:
1. Products: **Provide one of the following**
 - a. 795; Dow Corning.
 - b. HiFlex 393; NUCO Industries, Inc.
 - c. PSI-631; Polymeric Systems, Inc.
 - d. Spectrem 2; Tremco.
 - e. Tremsil 600; Tremco.
 2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25.
 4. Use Related to Exposure: NT (nontraffic).
 5. Uses Related to Joint Substrates: M, G, A, and, O as applicable to joint substrates indicated.
 6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.
- B. Single-Component Nonsag Urethane Sealant: Provide products complying with the following:
1. Products: **Provide one of the following**
 - a. Vulkem 230; Mameco International.
 - b. Sikaflex - 1a; Sika Corporation.
 - c. NP 1; Sonneborn Building Products Div., ChemRex Inc.
 2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25].

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4. Uses Related to Exposure: **NT (nontraffic)**.
5. Uses Related to Joint Substrates: M, A, and O as applicable to joint substrates indicated.

END OF SECTION 07920

SECTION 08620

ACRYLIC DOUBLE GLAZED DOUBLE HIP PYRAMID SKYLIGHTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 REFERENCE STANDARDS

- A. ASTM D 542: Standard Test Method for Index of Refraction of Transparent Organic Plastics
- B. ASTM D 632: Standard Specification for Sodium Chloride
- C. ASTM D 635: Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
- D. ASTM D 638: Standard Test Method for Tensile Properties of Plastics
- E. ASTM 695: Standard Test Method for Compressive Properties of Rigid Plastics
- F. ASTM 790: Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- G. ASTM D 1003: Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics
- H. ASTM D 1929: Standard Test Method for Determining Ignition Temperature of Plastics
- I. ASTM D 2843: Standard Test Method for Density of Smoke from the Burning or Decomposition of Plastics

1.3 SUMMARY

- A. This Section includes the following:
 - 1. Anodized aluminum framed plastic lens skylights.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 6 Section "Rough Carpentry" for wood curbs and nailers.
- C. Refer to roofing system Sections for roofing accessories to be built into the roofing system to accommodate Work of this Section.

1.4 PERFORMANCE REQUIREMENTS

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- A. General: Provide unit skylights capable of withstanding loads indicated without failure. Failure includes the following:
 - 1. Thermal stresses transferred to the building structure.
 - 2. Framing members transferring stresses, including those caused by thermal and structural movement, to glazing.
 - 3. Noise or vibration created by thermal and structural movement and wind.
 - 4. Loosening or weakening of fasteners, attachments, and other components.
 - 5. Sealant failure.

1.5 SUBMITTALS

- A. Product Data: For each type of skylight specified, including details of construction relative to materials, dimensions of individual components, profiles, finishes, and glazing light transmission and thermal characteristics.
- B. Shop Drawings: Show fabrication and installation of skylights, including plans, elevations, sections, details of components, and attachments to other units of Work.
- C. Samples for Selection: Manufacturer's color charts showing a full range of colors available for each type of skylight glazing, retainer, frame, and curb indicated.

1.6 DELIVERY, HANDLING, STORAGE

- A. Deliver products in manufacturer's original containers dry, undamaged, seals and labels intact.
- B. Store and protect products in accordance with manufacturer's recommendations.

1.7 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide plastic sheets identical to those tested for the following fire-test-response characteristics, per ASTM test method indicated below, by UL or other testing and inspecting agencies acceptable to authorities having jurisdiction. Identify plastic sheets with appropriate markings of applicable testing and inspecting organization.
 - 1. Self-Ignition Temperature: 750 deg F (343 deg C) or greater when tested per ASTM D 1929 on plastic sheets in the thickness intended for use.
 - 2. Smoke density of 15% or less when tested per ASTM D 2843 on plastic sheets in the thickness intended for use.
 - 3. Relative-Burning Characteristics: As follows, when tested per ASTM D 635:
 - a. Acrylic: Burning rate of 1.18 inch per minute or less when tested on plastic glazing with a nominal thickness of 0.118 inch or the thickness intended for use. Burning rate of 0.71 inch per minute or less when tested on plastic glazing with a nominal thickness of 0.235 inch.

1.8 WARRANTY

- A. General: Warranties specified in this Section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

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- B. Skylight Warranty: Provide written warranty signed by manufacturer, agreeing to repair or replace work that exhibits defects in materials or workmanship and guaranteeing weathertight and leak-free performance. "Defects" is defined as uncontrolled leakage of water and abnormal aging or deterioration.
 - 1. Warranty Period: 5 years from date of Substantial Completion.
- C. Plastic Warranty: Provide written warranty signed by manufacturer agreeing to repair or replace work that has or develops defects in the plastic. "Defects" is defined as abnormal aging or deterioration.
 - 1. Warranty Period for Acrylic: 5 years from date of Substantial Completion against yellowing.
- D. Finish Warranty: Provide written warranty signed by manufacturer agreeing to repair or replace work with finish defects. "Defects" is defined as peeling, chipping, abnormal aging or deterioration, and failure to perform as required.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following or approved substitute.
 - 1. Sunoptics prismatic skylights. (or pre-bid approved equal by others)
 - a. Sunoptice, double hip pyramid powder coated bronze extruded aluminum frame aluminum frame.
 - b. Model 800 MD

2.2 MATERIALS

- A. Extruded aluminum retaining angle. Extruded aluminum alloy 6063-T5 with minimum effective thickness of 0.055 inch. Mitered and welded corner assembly in mill finish.
- B. Extruded aluminum inner frame with integral condensation gutter. Extruded aluminum alloy 6063-T5 with minimum effective thickness of 0.055 inch unless noted. Mitered and welded corner assembly in mill finish.
- C. Double-sided very high bond adhesive closed cell foam tape glazing seal.
- D. Plastic Sheets: Monolithic, formable, transparent and translucent (white) sheets with weather and impact resistance. Glazing seal with back beaded dow silicone.
 - 1. Acrylic inner and outer dome
 - 2. SR 60, 50% impact modified clear prismatic lens over SR25 white prismatic lens
- E. Fasteners: 8x1 stainless steel – hex washer head, provided by installer. Skylight assembly fasteners zinc electroplated.
- F. Insulated thermal break

2.3 PLASTIC SKYLIGHT UNIT COMPONENTS

- A. General: Factory-assembled skylight units with plastic glazing held in place by a 6063-T5 extruded aluminum retaining angle and resting on an extruded aluminum inner frame

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- B. Condensation Control: Fabricate skylight units with integral internal gutters and nonclogging weeps to collect and dispose of condensation (optional unless noted).
- C. Thermal Break: Fabricate skylight units with thermal barrier separating interior metal framing from materials exposed to outside temperature.
- D. Size: 30" x 48"
- E. Glazing: SR 60, 50% impact modified clear prismatic lens over SR25 white prismatic lens

2.4 FABRICATION

A. Framing Components: As follows:

1. Factory fit and assembled components.
2. Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
3. Fabricate components to drain water passing joints and to drain condensation and moisture occurring or migrating within skylight system to the exterior.
4. Fabricate components to accommodate expansion, contraction, and field adjustment, and to provide for minimum clearance and shimming at skylight perimeter.
5. Fabricate components to ensure that glazing is thermally and physically isolated from framing members.
6. Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
7. Fit and secure joints by heliarc welding.

2.5 ALUMINUM FINISHES

- A. Powder coated: Dark bronze

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting skylight performance.
 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Metal Protection: As follows:
 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
 2. Where aluminum will contact pressure-treated wood, separate dissimilar materials by methods recommended by manufacturer.

3.3 INSTALLATION

- A. General: Comply with manufacturer's written instructions for protecting, handling, and installing skylight components.
- B. Coordinate with installation of roof deck and other substrates to receive skylight units.
- C. Coordinate with installation of vapor barriers, roof insulation, roofing, and flashing as required to assure that each element of the work performs properly and that combined elements are waterproof and weathertight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.
- D. Counter Flashing: Where counter flashing is required as component of the skylight, install to provide an adequate waterproof overlap with roofing or roof flashing (as counterflashing). Seal with thick bead of mastic sealant, except where overlap is indicated to be left open for ventilation.

3.4 CLEANING AND PROTECTION

- A. Clean exposed metal and plastic surfaces according to manufacturer's instructions. Touch up damaged metal coatings.
- B. Clean and polish plastic skylight units, inside and out, not more than 5 days prior to date of substantial completion.

END OF SECTION 08620